(Bernard le Bouyer de)

A

Week's Converſation

ON THE

PLURALITY

OF

WORLDS.

By Monſieur *FONTENELLE.*

Tranſlated from the laſt PARIS *Edition, wherein are many* IMPROVEMENTS *throughout; and ſome* NEW-OBSERVATIONS *on ſeveral* DISCOVERIES *which have been lately made in the* HEAVENS.

By WILLIAM GARDINER, *Eſq;*

The SECOND EDITION.

To which is added,

Mr. Secretary ADDISON's ORATION, made at *Oxford*, in Defenſe of the *New Philoſophy*.

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PREFACE.

I *AM pretty much in the* CASE *of* CICERO, *when he undertook to write of* Philoſophy *in his own Tongue, there being, then, no Books upon that Subject, but what were wrote in* Greek: *He was told, as he informed Us, that* he would take Pains to no Purpoſe; becauſe, ſuch as were Admirers of Philoſophy, would make uſe of *Greek* Authors, and not read *Latin* ones, which treated of it, but at ſecond-hand; and thoſe who had no ſuch Reliſh for this Science, would never trouble their Heads with either *Greek* or *Latin*.

CICERO replied, it might happen quite otherwiſe; for, *ſays he*, the great Eaſe People will find in reading *Latin Books*, will tempt thoſe to be Philoſophers who are none; and they who already are Philoſophers, by reading *Greek Books*, *will* be very glad to ſee how the Subject is handled in *Latin*.

CICERO *might with good Reaſon anſwer as he did, becauſe the Excellency of his Genius, and the great Reputation he had acquired, warranted the Succeſs of all he wrote: But in a Deſign, not much unlike his, I am far from having thoſe Grounds of Confidence which he had. My purpoſe is to Diſcourſe of* Philoſophy, *but not directly in a Philoſophical Manner; and to raiſe it to ſuch a Pitch, that it ſhall not be too dry and inſipid a Subject to pleaſe Gentlemen; nor too mean and trifling to entertain Scholars. Should I be told (as* Cicero *was) that ſuch a Diſcourſe as this, would not pleaſe the* Learned, *becauſe it cannot teach Them any thing;*

nor

nor the Illiterate, *becauſe they will have no mind to learn; I will not anſwer as he did: It may be, endeavouring to pleaſe* every Body, *I have pleaſed* no Body; *now, to keep a Medium betwixt two Extreams, is ſo very difficult, that, I believe, I ſhall never deſire to put my ſelf a Second Time to the like Trouble.*

If I ſhould acquaint Thoſe *who are to read this Book, and have any Knowledge of* Natural Philoſophy, *that I do not pretend to* Inſtruct, *but only to* Divert *them; by preſenting to their View in a gay and pleaſing Dreſs, what they have already ſeen in a more grave and ſolid Habit: Not but* They, *to whom the Subject is* New, *may be both* Diverted *and* Inſtructed: *The* firſt *will act contrary to my Intention, if they look for* Profit, *and the laſt, if they ſeek for nothing but* Pleaſure.

I have choſen that Part *of* Philoſophy *which is moſt likely to excite* Curioſity; *for I think nothing concerns us more,*

than to Enquire *how this* World, *which we inhabit,* is made; *and whether there be any other* Worlds *like it, which are alſo* Inhabited *as* This is? *But after all, it is at every Body's Diſcretion, how far they will run their Diſquiſitions:* Thoſe *who have any Thoughts to loſe, may throw them away upon ſuch Subjects as theſe; but, I ſuppoſe* ſuch *as can employ their Time better, will not be at ſo vain and fruitleſs an Expence.*

In theſe Diſcourſes, *I have introduced a* LADY, *to be inſtructed in Things of which ſhe never heard; and I have made uſe of this Fiction, to render the Book the more acceptable, and to give Encouragement to Gentlewomen, by the Example of one of their own Sex, who without any Supernatural Parts, or Tincture of Learning, underſtands what is ſaid to her; and without any Confuſion, rightly apprehends what* Vortexes *and other* Worlds *are: And why may not there be a Woman like this imaginary* Counteſs, *ſince her Conceptions are*

no

no other than such as she could not chuse but have?

To penetrate into things either obscure in themselves, or but darkly expressed, requires deep Meditation, and an earnest Application of the Mind; but here, nothing more is requisite than to Read, and to imprint an Idea of what is read, in the Fancy, which will certainly be clear enough. I shall desire no more of the Fair Sex, than that they will peruse this System *of* Philosophy, *with the same Application that they do a* Romance *or* Novel *when they would retain the Plot, or find out all its Beauties. It is true, that the* Ideas *of* this *are less familiar to most* Ladies, *than those of* Romances, *but they are not more obscure; for at most, twice or thrice thinking, will render them very perspicuous.*

I have not composed an Airy System, *which has no Foundation at all: I have made use of some true Philosophical Arguments, and of as many as I thought necessary;*

neceſſary; but it falls out very luckily in this Subject, that the Phyſical-Ideas *are in themſelves very diverting; and as they convince and ſatisfy Reaſon, ſo at the ſame Time they preſent to the Imagination a Proſpect which looks as if it were made on purpoſe to pleaſe It.*

When I meet with any Fragments which are not of this kind, I put them into ſome pretty ſtrange dreſs; Virgil *has done the like in his* Georgicks, *when his Subject is very dry, he adorns it with pleaſant Digreſſions:* Ovid *has done the ſame in his* Art of Love, *and though his Subject be of it ſelf very pleaſing, yet he thought it tedious to talk of nothing but* Love. *My Subject has more need of Digreſſions than his, yet I have made uſe of them very ſparingly, and of ſuch only, as the natural Liberty of Converſation allows: I have placed them only where I thought my Readers would be pleaſed to meet with them; the greateſt part of them are in the Beginning of the Book, becauſe the Mind cannot*

not at first be so well acquainted with the Principal Ideas which are presented to it; and, in a Word, they are taken from the Subject it self, or, are as near to it, as is possible.

I have related nothing concerning the Inhabitants *of the* several Worlds, *which may seem Fabulous, or Chimerical; but have said whatever may be reasonably thought of them; and the Visions which I have added, have some real Foundation; what is* true, *and what is* false *are mingled together, but so as to be easily distinguished: I will not undertake to justify so fantastical and odd a Composition, which is the principal Point of the Work, and yet, for which, I can give no very good Reason.*

There remains no more to be said in this Place, to a sort of People, who perhaps will not be easily satisfied, though I have good Reasons to give them; but, that the best which can be *given* will not *satisfy* them. *These are the scrupulous*

pulous Perſons, who imagine, that the placing Inhabitants *any where, but upon the* Earth, *will prove dangerous to* Religion: *I know how exceſſively tender ſome are in* religious Matters, *and therefore I am very unwilling to give any Offence, in what I publiſh, to People whoſe Opinion is contrary to* that *I maintain: But Religion can receive no Prejudice by my Syſtem, which fills an* Infinity *of* Worlds *with* Inhabitants, *if a little Error of the Imagination be but rectified. When it is ſaid the* Moon *is* inhabited, *ſome preſently fancy that there are ſuch* Men *there, as our ſelves; and Prieſts without any more a-do, think him an Atheiſt, who is of that Opinion.* None of *Adam's* Poſterity, cry they, ever travelled ſo far as the *Moon*; nor were any Colonies ever planted in that Region. *I grant it. The* Men *in the* Moon *are not the* Sons *of* Adam: *And here again* Theology *would be puzled, if there ſhould be* Men *any where, who never deſcended from* him. *To ſay no more, this is the great Difficulty to which all*

others

others may be reduced: To clear it by a larger Explanation, I muſt make uſe of Terms which deſerve greater Reſpect, than to put into a Treatiſe, ſo far from being ſerious as this is. But perhaps there is no need of Anſwering *the* Objection, *for it concerns no Body but the* Men *in the* Moon; *and I never yet affirmed there are* Men *there; if any ask what the* Inhabitants *are, if they be not* Men? *All I can ſay is, that I never ſaw them; and it is not becauſe I have ſeen them, that I ſpeak of them: Let none however think, that I ſay there are* no Men *in the* Moon, *purpoſely to avoid the* Objection *made againſt me; for it appears it is impoſſible there ſhould be* any Men *there, according to the* Idea *I have framed of that infinite Diverſity and Variety, which is to be obſerved in the Works of Nature; this* Idea *runs through the whole Book, and cannot be contradicted by any* Philoſopher: *Nay, I believe, I ſhall only hear this* Objection *ſtarted by ſuch as ſhall ſpeak of theſe* Diſcourſes, *without having read them.*

them. But is this a Point to be depended on? No, on the contrary, I ſhould more probably fear, that the Objection *might be made to me from many Paſſages.*

The Reader *will find in this* Edition, *beſides many Improvements interſperſed in the Body of the* Work, *one* New Converſation, *in which I have put together thoſe Reaſonings, which I had omitted in the foregoing ones; and have ſubjoined ſome* Late Diſcoveries *in the* Firmament, *ſeveral of which have never yet been made Publick.*

FONTENELLE.

THE

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A

Week's Converſation

ON THE

PLURALITY of WORLDS,

To Monſieur R***

TO give you, *Sir*, a particular Detail how I paſſed my Time at the Counteſs of *D****'s Country Seat, would make a large Volume; and what is yet worſe, a Volume of *Philoſophy*: Whereas the Entertainments you expect are of another kind, *viz. Dancing*, *Gaming*, *Hunting*; inſtead of which you muſt take up with

 Vortexes,

Vortexes, *Planets*, and *New Worlds*; theſe were the Subject of our Converſation. Now, as good Luck would have it, you are a Philoſopher, ſo that it will be no great Diſappointment; nay, I fancy, you'll be pleaſed, that I have brought over the Counteſs to our Party; we could not have gained a more conſiderable Perſon, for Youth and Beauty are ever ineſtimable: If *Wiſdom* would appear with Succeſs to Mankind, think you ſhe could do it more effectually than in the Perſon of the Counteſs? And yet was her Company but half ſo agreeable, I am perſuaded all the World would run mad after *Wiſdom*. But, tho' I tell you all the Diſcourſe I had with the Lady, you muſt not expect Miracles from me. It is impoſſible, without her Wit, to expreſs her Sentiments, in the ſame manner ſhe delivered them: For my part, I think her very Learned, from the great Diſpoſition ſhe has to Learning. It is not poring upon Books that makes a Man a Scholar. I know many who have done

done nothing elſe, and yet I fancy are not one tittle the wiſer: But, perhaps you expect, before I enter upon my Subject, I ſhould deſcribe the Situation, and Building of the Counteſs's Seat; many great Palaces have been turned inſide outward upon far leſs Occaſion: But, I intend to ſave you and my ſelf that labour; let it ſuffice, that I tell you, I found no Company with the Lady; this I was not at all diſpleaſed at; the firſt two Days drained me of all the News I brought from *Paris*; what I now ſend you is the reſt of our Converſation, which I will divide into ſo many Parts, as we were Evenings together.

The Firſt Evening's CONVERSATION.

That the Earth *is a* Planet, *which turns on it ſelf, and round the* Sun.

ONE Evening, after Supper, we went to take a turn in the Park; the Air, from the Heat of the preceding Day, was extremely refreſhing; the Moon was about an Hour high, and her Luſtre, between the Trees, made an agreeable mixture of Light and Shade; the Stars were arrayed in all their Glory, and not a Cloud appeared throughout the Azure Sky; I was muſing on this awful Proſpect—but who can think long of the Moon or Stars in the Company of a pretty Woman? I am much miſtaken if that is a Time for Contemplation: Well Madam, *ſays I, to the Counteſs,*

teſs, is not the Night as pleaſant as the Day? The Day, *replyed ſhe*, like a fair Beauty, is clear and dazling; but the Night, like a brown Beauty, more ſoft and moving. You are Generous, Madam, *anſwerd I*, to prefer the Brown, who have all the Charms that belong to the Fair: But, is there any Thing more Beautiful in Nature than the Day? The Heroines of Romances are generally Fair; and that Beauty muſt be perfect, which has all the Advantages of Imagination. Tell me not, *ſays ſhe*, of perfect Beauty, nothing can be ſo that is not moving. But ſince you talk of Romances, why do Lovers in their Songs and Elegies addreſs themſelves to the Night? 'Tis the Night, Madam, *replyed I*, that crowns their Joys, and therefore deſerves their thanks. But 'tis the Night, *anſwered ſhe*, that hears their Complaints, and how comes it to paſs, the Day is ſo little truſted with their Secrets? I confeſs, Madam, *ſays I*, the Night has ſomewhat a more melancholy Air than the Day; we fan-

cy the *Stars* march more ſilently than the *Sun*; and our Thoughts wander with the more Liberty, whilſt we think all the World at reſt but our ſelves: Beſides, the Day is more uniform; we ſee nothing but the Sun, and one Light in the Firmament; whilſt the Night ſhews us variety of Objects, and gives us ten Thouſand Stars, which inſpire us with as many pleaſant Ideas. *She replyed*, what you ſay is true, I love the *Stars*; there is ſomewhat charming in them, I could almoſt be angry with the *Sun* for effacing 'em. And I can't, *ſays I*, pardon him, for keeping all thoſe *Worlds* from my ſight: What Worlds, *ſays ſhe*, looking earneſtly upon me, do you mean?

I beg your Pardon, Madam, *replyed I*, you have put me upon my Folly, and I begin to rave: What Folly, *anſwered ſhe*, I diſcover none? Alas, *ſays I*, I am aſhamed, I muſt own it, I have had a ſtrong Fancy that every *Star* is a *World*: I will not ſwear that it is true, but muſt think ſo, becauſe it is ſo pleaſant to believe

lieve it; 'tis a Fancy come into my Head, which is very diverting. If your Folly be ſo diverting, *ſays the Counteſs*, pray make me ſenſible of it; provided the Pleaſure be ſo great, I will believe as much of the *Stars* as you would have me. I fear Madam, *replyed I*, 'tis a Diverſion you won't reliſh, 'tis not like reading one of *Moliere*'s Plays; 'tis a Pleaſure rather of the *Fancy* than of the *Judgment*. I hope, *anſwered ſhe*, you do not think me incapable of it; teach me your *Stars*, I will ſhew you the contrary. No, no, *ſays I*, it ſhall never be ſaid I was talking *Philoſophy* at Ten a-Clock at Night, to the moſt amiable Creature in the Univerſe; find your *Philoſophers* ſomewhere elſe.

But vain were my Excuſes; who could reſiſt ſuch Charms? I was forced to yield, and yet I knew not where to begin; for to a Perſon who underſtood nothing of *Natural Philoſophy*, you muſt go a great way about to prove that the *Earth* may be a *Planet*; the *Planets* ſo many *Earths*; and all the

Stars diſtinct Worlds; however, to give her a general Notion of *Philoſophy*, at laſt I reſolved on this Method. Madam, *ſays I*, all Philoſophy is founded upon theſe two Propoſitions. 1. *That, we are too ſhort ſighted*; or, 2. *That, we are too curious*; for, if our Eyes were better than they are, we ſhould ſoon ſee whether the *Stars* were *Worlds* or not; and if on the other ſide we were leſs curious, we ſhould not care whether the *Stars* are *Worlds* or not, which I think is much to the ſame Purpoſe. But the Buſineſs is, we have a mind to know more than we ſee: And again, if we could diſcern well what we do ſee, it would be too much known to us; but we ſee Things quite otherwiſe than they are. So that your true Philoſopher will not believe what he does ſee, and is always conjecturing at what he doth not; which I think is a Life not much to be envied: Upon this I fancy to my ſelf, that *Nature* very much reſembles an *Opera:* where you ſtand, you do not ſee the *Stage* as it really is; but as 'tis placed

placed with Advantage, and all the Wheels and Movements hid, to make the Repreſentation the more agreeable: Nor do you trouble your ſelf how, or by what Means the Machines are moved, tho' certainly an Engineer in the Pit is affected with what does not touch you; he is pleaſed with the Motion, and is demonſtrating to himſelf on what it depends, and how it comes to paſs. This Engineer is like a Philoſopher, tho' the Difficulty be greater on the Philoſopher's part, the Machines of the Theatre being not near ſo curious as thoſe of Nature, which diſpoſes her Wheels and Springs ſo much out of ſight, that we have been a long while gueſſing at the Movement of the Univerſe. Let us imagine, ſome of the ancient Sages to be at an Opera, ſuch as *Pythagoras*, *Plato*, or *Ariſtotle*, and all the Wiſe Men who have made ſuch a Noiſe in the World, for theſe many Ages: We will ſuppoſe 'em at the Repreſentation of PHAETON, where they ſee the aſpiring Youth lifted up by the

Winds, but do not diſcover the Wires by which he mounts, nor know they any Thing of what is done behind the Scenes. Would you have all theſe Philoſophers own themſelves to be ſtark Fools, and confeſs ingenuouſly they don't know how it comes to paſs: No, no, they are not called *Wiſe Men* for nothing; tho', let me tell you, moſt of their Wiſdom depends upon the Ignorance of their Neighbours. Every Man preſently gives his Opinion, and how improbable ſoever, there are Fools enough of all ſorts to believe 'em: One tells you *Phaeton* is drawn up by a hidden Magnetick Vertue, no matter where it lies; and perhaps the grave Gentleman will take Pet, if you ask him the Queſtion. Another ſays, *Phaeton* is compoſed of certain Numbers that make him mount; and after all, the Philoſopher knows no more of thoſe Numbers than a ſucking Child does of *Algebra*: A third tells you, *Phaeton* has a ſecret love for the Top of the Theatre, and like a true Lover, cannot

not be at reſt out of his Miſtreſs's Company, with an hundred ſuch extravagant Fancies, that a Man muſt conclude the Old Sages were very good Banterers: But now comes Monſieur *Deſcartes*, with ſome of the Moderns, and they tell you PHAETON aſcends, becauſe a greater Weight than he deſcends; ſo that now we do not believe a Body can move without it is puſhed and forced by another Body, and, as it were, drawn by Cords, ſo that nothing can riſe or fall, but by the Means of a Counterpoiſe; to ſee Nature then, as ſhe really is, one muſt ſtand behind the Scenes at the Opera. I perceive, *ſays the Counteſs*, Philoſophy is now become very Mechanical. *Yes, Madam, replyed I*, ſo Mechanical, that I fear we ſhall quickly be aſhamed of it; they will have the World to be in Large, what a Watch is in Small; which is very regular, and depends only upon the juſt diſpoſing of the ſeveral Parts of the Movement. But pray tell me, Madam, had you not formerly a more

ſublime Idea of the Univerſe? Do not you think you then honoured it more than it deſerved? For moſt People have the leſs Eſteem for it ſince they have pretended to know it. I am not of their Opinion, *ſays ſhe*, I value it the more ſince I know it reſembles a Watch; and the more plain and eaſy the whole Order of Nature ſeems to be, to me it appears the more admirable.

I do not know, *anſwered I*, who has inſpired you with theſe ſolid Notions, but I am certain there are but few who have them beſides your ſelf; People generally admire what they do not comprehend; they have a Veneration for Obſcurity, and look upon Nature, as a kind of Magick, while they do not underſtand her, and deſpiſe her below Legerdemain, when once they are acquainted with her; but I find you, Madam, ſo much better diſpoſed, that I have nothing to do but to draw the Curtain, and ſhew you the World. That then which appears fartheſt from the Earth, (where we reſide) is called the

the *Heavens*, that Azure Firmament where the Stars are faſtned like ſo many Nails, (and are called fixed, becauſe they ſeem to have no other Motion than that of their Heaven, which carries them with it ſelf from Eaſt to Weſt.) Between the Earth and this great Vault (as I may call it) hang at different Heights the *Sun*, and the *Moon*, with the other five Stars, *Mercury*, *Venus*, *Mars*, *Jupiter* and *Saturn*, which we call the Planets, not being faſtned to the ſame Heaven, and having very unequal Motions, have divers Aſpects and Poſitions: Whereas the fixed Stars in reſpect to one another, are always in the ſame Situation: For Example, *Charles*'s Wain, which is compoſed of thoſe ſeven Stars, has been and ever will be as it now is, tho' the *Moon* is ſometimes nearer to the *Sun*, and ſometimes farther from it; and ſo it is with the reſt of the Planets. Thus things appeared to the old *Chaldæan* Shepherds, whoſe great Leiſure produced theſe firſt Obſervations, which have ſince been the Foundation of Aſtronomy;

nomy; which Science had its Birth in *Chaldæa*, as Geometry ſprung from *Egypt*, where the Inundation of the *Nile* confounding the Bounds of the Fields, occaſioned their inventing more exact Meaſures to diſtinguiſh every one's Land from that of his Neighbour. So that *Aſtronomy* was the Daughter of *Idleneſs*, *Geometry* the Daughter of *Intereſt*; and if we did but examine *Poetry*, we ſhould certainly find her the Daughter of *Love*.

I am glad, ſays the Lady, I have learnt the *Genealogy* of the *Sciences*, and am convinced I muſt ſtick to *Aſtronomy*, my Soul is not mercenary enough for Geometry, nor is it tender enough for Poetry; but I have as much Time to ſpare as Aſtronomy requires; beſides we are now in the Country, and lead a kind of Paſtoral Life, all which ſuits beſt with Aſtronomy. Do not deceive your ſelf, Madam, replyed I, 'tis a true Shepherd's Life to talk of the Stars and Planets: See if they paſs their Time ſo in *Aſtræa*. That ſort of Shepherd's Craft,

Craft, *anſwered ſhe*, is too dangerous for me to learn; I love the honeſt *Chaldæans*, and you muſt teach me their Rules, if you'd have me improve in their Science. But let us proceed; When they had ranked the Heavens in the Manner you tell me, pray, what is the next Queſtion? The next, *ſays I*, is the diſpoſing the ſeveral Parts of the Univerſe, which the Learned call, *making* a *Syſtem*; but before I expound the firſt Syſtem, I would have you obſerve, we are all naturally like the Madman at *Athens*, who fancied all the Ships that came into the *Pyræum* Port, belonged to him: Nor is our Folly leſs extravagant, we believe all things in Nature deſigned for our Uſe; and do but ask a Philoſopher, to what Purpoſe there is that prodigious company of fix'd Stars, when a far leſs Number would perform the Service they do us? He anſwers coldly, they were made to pleaſe our Sight. Upon this Principle they imagined the Earth reſted in the Center of the Univerſe, while all the Celeſtial Bodies

Bodies (which were made for it) took the Pains to turn round to give Light to it. They placed the *Moon* above the *Earth*, *Mercury* above the *Moon*, after *Venus*, the *Sun*, *Mars*, *Jupiter*, *Saturn*; above all theſe they ſet the Heaven of fixed Stars, the Earth was juſt in the Middle of thoſe Circles which contain the Planets, and the greater the Circles were, they were the farther diſtant from the Earth, and by conſequence the fartheſt Planets took up the moſt Time in finiſhing their Courſe; which in effect is true: But why, *ſays the Counteſs* (interrupting me) do you diſlike this *Syſtem*: It ſeems to me very clear and intelligible. However, *replyed I*, Madam, I will make it plainer; for ſhould I give it you as it came from *Ptolomy* its Author, or ſome others who have ſince ſtudied it, I ſhould frighten you, I fancy, inſtead of diverting you. Since the Motions of the Planets are not ſo regular, but that ſometimes they go faſter, ſometimes ſlower, ſometimes are nearer the Earth, and ſometimes farther

farther from it; the Ancients invented I do not know how many Orbs or Circles, involved one within another, which they thought would ſalve all Objections; this Confuſion of Circles was ſo great, that, at that Time, when they knew no better, a certain King of *Aragon*, a great Mathematician, (but not much troubled with Religion,) ſaid, *That had God conſulted him when he made the World, he would have told him how to have framed it better.* The Saying was very Atheiſtical, and no doubt the Inſtructions he would have given the Almighty, was the Suppreſſing thoſe Circles with which they had clogged the Celeſtial Motions, and the taking away two or three ſuperfluous Heavens, which they placed above the fixed Stars; for theſe Philoſophers, to explain the Motion of the Celeſtial Bodies, had above the uppermoſt Heaven (which we ſee) found another of Cryſtal, to influence and give Motion to the inferiour Heavens; and wherever they heard of another Motion, they preſently clapped up a Cryſtal Heaven

Heaven which coſt them nothing. But why, *ſays the Counteſs*, muſt their Heaven be of Cryſtal, would nothing elſe ſerve as well? No, no, *replyed I*, nothing ſo well; for the Light was to come through them, and yet they were to be ſolid. *Ariſtotle* would have it ſo, he had found Solidity to be one of their Excellencies, and when he had once ſaid it, no Body would be ſo rude as to queſtion it. But it ſeems there were Comets much higher than the Philoſophers expected, which as they paſſed along broke the Cryſtal Heavens, and confounded the Univerſe. But to make the beſt of a bad Market, they preſently melted down their broken Glaſs, and to *Ariſtotle*'s Confuſion, made the Heavens fluid; and by the Obſervations of theſe latter Ages, it is now out of doubt, that *Venus* and *Mercury* turn round the *Sun*, and not round the *Earth*, according to the Ancient Syſtem, which is now every where exploded, and all the Authorities not worth a Ruſh. But that which I am going to lay down, will

ſalve

ſalve all, and is ſo clear, that the King of *Aragon* himſelf may ſpare his Advice. Methinks, *anſwered the Counteſs*, your Philoſophy is a kind of Out-cry, where he that offers to do the Work cheapeſt, carries it from all the reſt. This, *ſays I*, is very true, Nature is a great Huſwife, ſhe always makes uſe of what coſts leaſt, let the Difference be ever ſo inconſiderable; and yet this Frugality is accompanied with an extraordinary Magnificence, which ſhines through all her Works; that is, ſhe is Magnificent in the Deſign, but Frugal in the Execution; and what can be more Praiſe-worthy, than a great Deſign accompliſhed with a little Expence? But in our Ideas we turn Things topſy-turvy, we place our thrift in the Deſign, and are at ten times more Charge in Workmanſhip than it requires; which is very ridiculous. Imitate Nature then, *replyed ſhe*, in your Syſtem, and give me as little trouble as you can to comprehend you. Madam, *ſays I*, fear it not, we have done with our Impertinences: Imagine then a *German*

man called COPERNICUS confounding every Thing, tearing in Pieces the beloved Circles of Antiquity, and ſhattering their Cryſtal Heavens like ſo many Glaſs Windows; ſeized with the noble Rage of Aſtronomy, he ſnatches up the *Earth* from the Center of the Univerſe, ſends her packing, and places the *Sun* in the Center, to which it did more juſtly belong; the *Planets* no longer turn round the *Earth*, nor incloſe it in the Circles they deſcribe; if they give us Light, it is but by chance, and as they meet us in their way: All now goes round the *Sun*, even the *Earth* herſelf; and *Copernicus* to puniſh the Earth for her former Lazineſs, makes her contribute all he can to the Motion of the Planets and Heavens; and now, ſtriped of all the Heavenly Equipage with which ſhe was ſo glorioufly attended, ſhe has nothing left her but the *Moon*, which ſtill turns round about her: Fair and ſoftly, *ſays the Counteſs*, I fancy you your ſelf are ſeized with the Noble Fury of *Aſtronomy*; a little leſs Rapture,

ture, and I ſhall underſtand you better. The *Sun* you affirm is in the Center of the Univerſe, and is immoveable; *Mercury*, *ſays I*, follows next, he turns round the Sun, ſo that the Sun is in the Center of the Circle wherein *Mercury* moves; above *Mercury* is *Venus*, who turns all round the Sun; after, comes the Earth, which being placed higher than *Mercury* and *Venus*, makes a greater Circle round the Sun than either of them; at laſt comes *Mars*, *Jupiter* and *Saturn*, in the ſame Order I name them, ſo that *Saturn* has the greateſt Circle round the Sun, which is the Reaſon he is longer in making his Revolution than any of the other Planets. You have forgot the *Moon*, *ſays the Counteſs*, we ſhall quickly find her again, *replyed I*; the *Moon* turns round the *Earth*, and does not leave her, but as the *Earth* advances in the Circle, which ſhe deſcribes about the *Sun*; and if the *Moon* turns round the *Sun*, it is becauſe ſhe won't quit the Earth; I underſtand you, *anſwered ſhe*, and I love the *Moon* for ſtaying

ſtaying with us when all the other Planets abandon us; nay, I fear your *German* would have willingly taken her away too if he could; for in all his Proceedings, I find he had a great ſpite to the Earth. It was well done of him, ſays I, to abate the Vanity of Mankind, who had taken up the beſt Place in the Univerſe, and it pleaſes me to ſee the Earth in the Crouds of the Planets. Sure, *anſwered ſhe*, you do not think their Vanity extends it ſelf ſo far as Aſtronomy! Do you believe you have humbled me, in telling me the *Earth* goes round the *Sun*? For my part I do not think my ſelf the worſe for it. I confeſs, Madam, *replyed I*, it is my belief, that a fair Lady would be much more concerned for her Place at a Ball, than for her Rank in the Univerſe; and the Precedence of two Planets will not make half ſuch a Noiſe in the World, as that of two Ambaſſadors; however, the ſame Inclination which reigns at a Ceremony, governs in a Syſtem; and if you love the uppermoſt

Place

Place in the one, the Philoſopher deſires the Center in the other; he flatters himſelf that all Things were made for him, and inſenſibly believes a Matter of pure Speculation to be a Point of Intereſt. This a Calumny, *ſays ſhe*, you have invented againſt Mankind; why did they receive this Syſtem if it was ſo erroneous? I know not, *anſwered I*, but I am ſure *Copernicus* himſelf diſtruſted the Succeſs of his Opinion; it was a long time before he would venture to publiſh it; nor had he done it then, without the Importunity of his Friends. But do you know what became of him? The very Day they brought him the firſt printed Sheet of his Book, he dyed; foreſeeing that he ſhould never be able to reconcile all the Contradictions, and therefore very wiſely ſlipt out of the way. I would be Juſt to all the World, *ſays the Counteſs*; but it is hard to fancy we move, and yet find we do not change our Place; we perceive our ſelves in the Morning where we lay down at Night: Perhaps

haps you will tell me the whole Earth moves— Yes, certainly, *adds I*; it is the ſame Caſe as if you fell aſleep in a Boat upon the River, when you wake you find your ſelf in the ſame Place, and the ſame Situation, in reſpect to all the Parts of the Boat. It is true, *replied ſhe*, but here is a great Difference, when I wake I find another Shore, and that ſhows me, my Boat has changed its Place. But it is not the ſame with the Earth, I find all Things as I left them. No, no, *ſays I*, there is another Shore too; You know that beyond the Circles of the *Planets* are *fixed Stars*, there is our Shore, I am upon the *Earth*, and the *Earth* makes a great Circle round the *Sun*; I look for the Center of the Circle and ſee the *Sun* there, then I direct my ſight beyond the *Sun* in a right Line, and ſhould certainly diſcover the *fixed Stars* which anſwer to the Sun, but that the Light of the Sun effaces them: But at Night I eaſily perceive the *Stars* that correſponded with *him* in the Day, which is exactly

exactly the ſame Thing; if the *Earth* did not change its place in the Circle where it is, I ſhould ſee the *Sun* always againſt the ſame *fixed Stars*; but when the *Earth* changes its place, the *Sun* muſt anſwer to *other Stars*, and there again is your Shore, which is always changing. And ſeeing the *Earth* makes her Circle in a Year, I ſee the *Sun* likewiſe in the ſpace of a Year anſwer ſucceſſively to the whole Circle of the *fixed Stars*, which Circle is called the *Zodiack:* I'll draw you the Figure of it, if you pleaſe, on the Sand? 'Tis no matter, *replyed the Counteſs*, I can do well enough without it; beſides it will give an Air of Learning to my Park which I would not have in it: For I've heard of a certain Philoſopher, who being Shipwracked, and caſt upon an unknown Iſland, ſeeing ſeveral Mathematical Figures traced on the Sea-ſhore, cryed out to thoſe who followed him, *Courage, Courage, my Companions, the Iſle is inhabited, behold the Footſteps of Men.*

But you may ſpare your Figures, ſuch Footſteps are not decent here.

I confeſs, Madam, *added I*, the Footſteps of Lovers would better become this Place; that is, your Name and Cypher cut on the Trees by your Adorers. Tell me not, *ſays ſhe*, of Lovers and Adorers, I am for my beloved *Sun* and *Planets*. But how comes it to paſs that the *Sun* as to the fixed Stars, compleats his Courſe but in a Year, and yet goes over our Heads every Day? Did you never, *replyed I*, obſerve a Bowl on the Green? It runs towards the Block, and at the ſame time turns very often round itſelf, ſo that the parts which were above are below, and thoſe which were below are above; juſt ſo it is with the *Earth*, at the ſame time that ſhe advances on the Circle, which in a Year's ſpace ſhe makes round the *Sun*, in twenty-four Hours ſhe turns *round her ſelf*; ſo that in twenty-four Hours every Part of the *Earth* loſes the *Sun*, and recovers him again, and as it turns towards the *Sun*, it ſeems to riſe, and as it turns from him,

him, it ſeems to fall. 'Tis very pleaſant, *ſays ſhe*, that the *Earth* muſt take all upon her ſelf, and the *Sun* do nothing: And when the *Moon*, the other *Planets*, and the *fixed Stars* ſeem to go over our Heads every twenty-four Hours, you'll ſay, That too is only Fancy? Mere Fancy, Madam, which proceeds from the ſame Cauſe; for the *Planets* compleat their Courſes round the *Sun* at unequal times, according to their unequal Diſtances; and That which to Day we ſee anſwer to a certain Point in the *Zodiack*, or *Circle* of the fixed Stars, to Morrow will anſwer to another Point, becauſe it is advanced on its own Circle, as well as we are advanced upon ours: We move, and the *Planets* move too, but with more or leſs Rapidity than we do; this puts us in different Points of Sight in reſpect to them, and makes us think their Courſes irregular; but there is no Occaſion of diſcourſing to you on that Head; 'tis ſufficient to inform you, that what ſeems irregular in the Planets, proceeds only from our

Motion, when in Truth they are all very regular. I will ſuppoſe them ſo, *ſays the Counteſs*, but I would not have their Regularity put the *Earth* to ſo great Trouble; methinks you exact too much Activity from ſo ponderous a Maſs. But, *ſays I*, had you rather that the Sun and all the Stars, which are vaſt great Bodies, ſhould in twenty four Hours make a prodigious Tour round the Earth; and that the fixed Stars which are in a Circle of infinite Extent, whoſe Movement is always extreme, ſhould run in a Day, three hundred Millions of Leagues, and go farther than from hence to *China* in the Time that you could ſay, *Away, quick to China*, as they needs muſt, if the *Earth* did not turn *round it ſelf* every twenty four Hours? To ſay the Truth, it is much more reaſonable to think that ſhe ſhould make the Tour, which at moſt is not above nine thouſand Leagues; you perceive plainly, that to ſet nine thouſand Leagues againſt three Hundred Millions, is no trifling Difference.

rence. Oh, *ſays ſhe*, the *Sun* and the *Stars* are all Fire, their Motion is not very difficult; but the *Earth*, I fancy, is a little unweildy. That, *replyed I*, ſignifies nothing; for what think you of a Firſt Rate Ship, which carries above 100 Guns, and near 1000 Men, beſides her Proviſions and other Furniture? One Puff of Wind you ſee ſets Her a ſailing, becauſe the Water is liquid, and being eaſily ſeparated, very little reſiſts the Motion of the Ship; or if ſhe lie in the Middle of a River, ſhe will without Difficulty drive with the Stream, becauſe there is nothing to oppoſe her Courſe. So the *Earth*, tho' never ſo weighty, is as eaſily borne up by the Celeſtial Matter, which is a thouſand times more fluid than the Water, and fills all that great ſpace where the Planets float; for how elſe would you have the Earth faſtned to reſiſt the Motion of the Celeſtial Matter, and not be driven by it? You may as well fancy a little Block of Wood can withſtand the Current of a River. But

pray, *ſays ſhe*, how can the Earth with all its Weight be borne up by your Celeſtial Matter, which muſt be very light, becauſe it is ſo fluid? It does not argue, *anſwered I*, that what is moſt fluid, is moſt light: For what think you of the great Veſſel I mentioned juſt now, which with all its Burthen is yet lighter than the Water it floats on? I'll have nothing to do with the great Veſſel, *ſays ſhe*, with ſome Warmth, and I begin to apprehend my Self in ſome Danger upon ſuch a Whirlegig as you have made of the Earth. There is no Danger, *replyed I*; but, Madam, if your Fears increaſe, we will have the Earth ſupported by four Elephants, as the *Indians* believe it. Hey Day, *cry ſhe*, here is another Syſtem; however I love thoſe People for taking care of themſelves, they have a good Foundation to truſt to, while we *Copernicans* are a little too venturous with the Celeſtial Matter; and yet I fancy if the *Indians* thought the *Earth* in the leaſt danger of ſinking, they would double their Number of Elephants.

They

They do well, *ſays I*, laughing at her Fancy; who would ſleep in Fear? And if you have occaſion for them to Night, we will put as many as you pleaſe in our Syſtem, we can take them away again by Degrees, as you grow better confirmed. I don't think 'em very neceſſary, *replyed ſhe*, I have Courage enough to turn. You ſhall turn with Pleaſure, Madam, *ſays I*, and ſhall find delightful Ideas in this Syſtem. For Example, ſometimes I fancy my ſelf ſuſpended in the *Air*, without any Motion, while the *Earth* turns round me in twenty-four Hours; I ſee I know not how many different Faces paſs under me, ſome White, ſome Black, and ſome Tauny; ſometimes I ſee Hats, and ſometimes Turbants; now Heads with Hair, and then ſhaved Pates; here I ſee Cities with Steeples, ſome with Spires and Creſcents, others with Towers of *Porcelain*; and, anon, great Countries with nothing but Huts; here I ſee vaſt Oceans, and there moſt horrible Deſarts; in ſhort, I diſ-

cover the infinite Variety which is upon the Surface of the Earth.

I confeſs, *ſays ſhe*, 24 Hours would thus be very well beſtowed, ſo that in the Place where we are now, I do not mean in the *Park*, but we will ſuppoſe our ſelves in the Air, other People continually paſs by who take up our Place, and at the End of twenty four Hours we return to it again.

Copernicus himſelf, *anſwered I*, could not have comprehended it better: Firſt then we might ſee the *Engliſh* paſſing by us, up to the Ears in Politicks, yet ſetling the Nation no better than we do the *World* in the *Moon*; then follows a great Sea, and there perhaps ſome Veſſel, not near in that Tranquility as we are; then come ſome of the *Iroquois* going to eat a Priſoner for their Breakfaſt, who ſeems as little concerned as his Devourers. After appear the Women of the Land of *Jeſſo*, who ſpend all their Time in dreſſing their Husband's Dinners and Suppers, and painting their Lips and Eye-brows Blue, only to pleaſe the

the greateſt Brutes in the World. Then the *Tartars* going devoutly on Pilgrimage to their Great *Preſter John*, who never comes out of a Gloomy Appartment all hung with Lamps, by the Light of which they pay their Adoration to him: Then the fair *Circaſſians*, who make no Scruples of granting every thing to the firſt Comer, except what they think eſſentially belongs to their Husbands: Then the Inhabitants of little *Tartary* going to ſteal Concubines for the *Turks* and *Perſians*; and at laſt, our own dear Countrymen, it may be in ſome Points, as ridiculous as the beſt of 'em.

This, *ſays the Counteſs*, is very pleaſant; but, to imagine what you tell me, tho' I were *above*, and ſaw all this, I would have the Liberty to haſten or retard the Motion of the *Earth*, according as the Objects pleaſed me more or leſs; and I aſſure you I ſhould quickly ſend packing the *Politicians* and *Man-eaters*, but ſhould have a great Curioſity for the fair *Circaſſians*; for methinks they have a Cuſtom very particular. But I have a

Difficulty to ſolve, and you muſt be ſerious. As the *Earth* moves, the Air changes every Moment, ſo we breath the *Air* of another Country. Not at all, *replyed I*, for the *Air* which encompaſſes the *Earth*, does not extend above a certain Height, perhaps 20 Leagues; it follows us and turns with us: Have you not ſeen the Work of a *Silk-Worm*, the *Shells* which thoſe little Animals impriſon themſelves in, and weave with ſo much Art and Cloſeneſs; but yet their Covering is of a Down very looſe and ſoft: So the *Earth* which is ſolid, is covered from the Surface 20 Leagues upwards with a kind of Down, which is the Air, and like the *Shell* of the *Silk-Worm* turns at the ſame Time. Beyond the *Air* is the *Celeſtial Matter*, incomparably more pure and ſubtle, and much more agitated than the *Air*.

Your Compariſon, *ſays ſhe*, is ſomewhat mean, and yet what Wonders are wrought, what Wars, what Changes in this *little Shell*? 'Tis true, *replyed I*, but Nature takes no notice of ſuch minute

nute particular Motions, but drives us along with the general Motion, as if ſhe were at Bowls.

Methinks, *ſays ſhe*, 'tis very ridiculous to be upon a Thing that turns, and be in all this Perplexity, and yet not be well aſſured that it does turn; and to tell you the Truth, I begin to diſtruſt the Reaſons you give, why we ſhould not be ſenſible of the *Motion* of the *Earth*; for is it poſſible there ſhould not be ſome little Mark left, by which we might perceive it?

All Motions, *replyed I*, the more common and natural they are, are the leſs perceptible, and this holds true even in Morality; the Motion of *Self-Love* is ſo natural to us, that for the moſt part we are not ſenſible of it, and we believe we act by other Principles. Now, *ſays ſhe*, are you moralizing to a Queſtion of *Natural-Philoſophy* which is running wide of the Argument: But enough, this Lecture is ſufficient for the firſt Time, let us now depart, and meet here again to-Morrow, You with your Syſtems, and I with my Ignorance.

In returning back to the Caſtle, that I might ſay all I could on the Subject, I told her of a third Syſtem, invented by *Tycho Brache*, who had fixed the *Earth* in the *Center* of the *World*, turned the *Sun* round the *Earth*, and the reſt of the *Planets* round the *Sun*; for ſince the New Diſcoveries, there was no Way left to have the *Planets* turn round the *Earth*. But the *Counteſs* with the quickeſt Apprehenſion, *replyed*, ſhe thought this too affected a Syſtem, that among ſo many great Bodies, the *Earth* only ſhould be exempted from turning round the *Sun*; that it was improper to make the *Sun* turn round the *Earth*, when all the *Planets* turn round the *Sun*; and that tho' this Scheme was to prove the Immobility of the *Earth*, yet ſhe thought it very improbable: So we reſolved to ſtick to *Copernicus*, whoſe Opinion we thought moſt Uniform, Probable, and Diverting. In a Word, the Simplicity of his Syſtem, convinces us; and the Boldneſs of it ſurprizes with Pleaſure.

The

The Second Evening's Conversation.

That the Moon *is an Habitable World.*

THE next Morning, as ſoon as any one could get Admittance, I ſent to the Counteſs's Appartment, to know how ſhe had reſted, and whether the *Motion* of the *Earth* had not diſturbed her? She returned for Anſwer, ſhe began to be accuſtomed to it, and that *Copernicus* himſelf had not ſlept better. Some time after there came ſome Neighbours to Dinner, who ſtayed with her till the Evening, according to the tireſome Cuſtom in the Country; nay, and they were very obliging in going then, for the Country likewiſe gives a Privilege of extending their Viſit to the next Morning if they are ſo diſpoſed, and have

have not the Conſcience to break up. The *Counteſs* and I finding our ſelves at Liberty, in the Evening, we went again to the Park, and immediately fell upon our Syſtems: She ſo well retained what I told her the Night before, that ſhe deſired I would proceed without any Repetition. Well, Madam, *ſays I*, Since the *Sun*, which is now immoveable, has left off being a *Planet*; and the *Earth* which turns round him is now become *one*, you'll not be ſurprized when you hear that the *Moon* is an *Earth* too, and a habitable World. I confeſs, *ſays ſhe*, I have often heard talk of the *World* in the *Moon*, but I always looked upon it as Viſionary and meer Fancy. And, *replyed I*, it may be ſo ſtill; I am in this Caſe, as People in a Civil-War, where the Uncertainty of what may happen, makes them hold Intelligence with the oppoſite Party, and correſpond with their very Enemies; for tho' I do verily believe the *Moon* is Inhabited, I live civilly with thoſe who do not believe it; and I am (like ſome

honeſt Gentlemen in Point of Religion) ſtill ready to embrace the prevailing Opinion; but till the Unbelievers have a more conſiderable Advantage, I declare for the Inhabitants of the Moon.

Suppoſe there had never been any Communication between *Paris* and St. *Dennis*, and one who was never beyond the Walls of this City, ſaw St. *Dennis* from the Towers of *Noſtre-Dame*; you ask him if he believes St. *Dennis* is Inhabited as *Paris* is? He preſently anſwers boldly, No; for, *ſays he*, I ſee very well the People at *Paris*, but thoſe at St. *Dennis* I do not ſee at all, nor did I ever hear of any there: 'Tis true, you tell him, that from the Towers of *Noſtre-Dame*, he cannot perceive any Inhabitants of St. *Dennis*, becauſe of the diſtance; but all that he does diſcover of St. *Dennis*, very much reſembles what he ſees at *Paris*, the Steeples, Houſes, and Walls, ſo that it may very well be Inhabited as *Paris* is; all this ſignifies nothing, my Cockney ſtill maintains that St.

Dennis

Dennis is not inhabited, becauſe he ſees no Body there. The *Moon* is our St. *Dennis*, and every one of us is like this *Pariſian* Cockney, who never went out of his own City.

You are too ſevere, *ſays ſhe*, upon your Fellow Citizens; we are not all ſure ſo ſilly as your Cockney; ſince St. *Dennis* is juſt like *Paris*, he is a Fool if he does not think it inhabited: But the *Moon* is not at all like the *Earth*. Take care what you ſay, Madam, *replyed I*, for if the *Moon* reſembles the *Earth*, you are under a Neceſſity to believe it inhabited. If it be ſo, *ſays ſhe*, I own I cannot be diſpenſed from believing it; and you ſeem ſo confident of it, that I fear I muſt, whether I will or no. 'Tis true, the two *Motions* of the *Earth*, (which I could never imagine till now) do a little ſtagger me as to all the reſt; but yet, how is it poſſible the *Earth* ſhould enlighten as the *Moon* does, without which they cannot be alike? If that be all, *adds I*, the Difference is not great; for 'tis the *Sun* which is the ſole Foun-

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tain of Light; that Quality proceeds only from him; and if the *Planets* give Light to us, it is becauſe they firſt receive it from the *Sun*; the *Sun* ſends Light to the *Moon*, and ſhe reflects it back on the *Earth*; the *Earth* in the ſame manner receives Light from the *Sun*, and ſends it to the *Moon*; for the Diſtance is the ſame between the *Earth* and the *Moon*, as between the *Moon* and the *Earth*.

But, *ſays the Counteſs*, is the *Earth* as fit to ſend back the Light of the *Sun* as the *Moon* is? You are altogether for the *Moon*, *ſaid I*; ſhe is much obliged to you; but you muſt know that Light is made up of certain little Balls, which rebound from what is Solid, but paſs through what admits of an entrance in a right Line, as Air into Glaſs: So that what makes the *Moon* enlighten us, is that ſhe is a firm and ſolid Body, from which the little Balls rebound; and we muſt deny our Senſes, if we will not allow the *Earth* the ſame Solidity: In ſhort, the Difference is how we are ſeated; for the

the *Moon* being of ſo vaſt a diſtance from us, we can only diſcover her to be a Body of Light, and do not perceive that ſhe is a great Maſs, altogether like the *Earth:* Whereas on the contrary, becauſe we are ſo near the *Earth*, we know her to be a great Maſs, proper for the furniſhing Proviſion for Animals; but do not diſcover her to be a Body of Light, for want of the due Diſtance: It is juſt ſo with us all, *ſays the Counteſs*, we are dazled with the Quality and Fortune of thoſe who are above us, when, do but examine Things nicely, we are all upon a Level.

Its very true, *replyed I*, we would judge of all Things, but yet ſtand in the wrong Places; we are too near to judge of our ſelves, and too far off to know others: So that the true way to ſee Things as they are, is to ſtand between the *Moon* and the *Earth*; to be purely a Spectator of this World, and not an Inhabitant. I ſhall never be ſatisfied, *ſays ſhe*, for the Injuſtice we do the *Earth*, and the too favourable Opinion we have of

of the *Moon*, till you aſſure me that the *Inhabitants* of the *Moon* are as little acquainted with their Advantages, as we are with ours; and that they take our *Earth* for a *Planet*, without knowing theirs is one too. Don't doubt it, *anſwered I*, we appear to them to perform very regularly our *Function* of a Planet: 'Tis true, they do not ſee us make a Circle round them, but that is no great matter. That half of the *Moon* which was turned towards us at the beginning of the World, has been turned towards us ever ſince; and thoſe Spots in her, which we have fancied look like a Face, with Eyes, Noſe and Mouth, are ſtill the ſame, and if the other oppoſite half ſhould appear to us, we ſhould, no doubt, fancy another Figure from the different Spots that are in it: Not but that the *Moon* turns upon her ſelf, and in the ſame time that ſhe turns round the *Earth*, that is in a Month; but while ſhe is making that turn upon herſelf, and that ſhe ſhould hide a Cheek, for Example, and appear ſomewhat elſe to us, ſhe makes a like part of her Circle round

round the *Earth*, and ſtill preſents to us the ſame Cheek; ſo that the Moon, who in reſpect of the *Sun* and *Stars* turns round her ſelf, in reſpect of us does not turn at all; they ſeem to her to riſe and ſet in the ſpace of fifteen Days; but for our *Earth*, it appears to her to be held up in the ſame Place of the Heavens: 'Tis true, this apparent Immobility is not very agreeable to a Body which ſhould paſs for a *Planet*, but it is not altogether perfect; the *Moon* has a kind of trembling which cauſes a little Corner of her Face to be ſometimes hid from us, and a little Corner of the oppoſite half appears; but then, upon my Word, ſhe attributes that trembling to us, and fancies that we have in the Heavens the Motion of a *Pendulum*, which vibrates too and fro.

I find, *ſays the Counteſs*, the *Planets* are juſt like us; we caſt that upon others which is in our ſelves; ſays the *Earth*, *'Tis not* I *that turn*, *'tis the* Sun; the Moon ſays, *'tis not* I *that ſhake*, *'tis the* Earth; there is a great deal of Er-

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ror every where. But I would not adviſe you, *Madam*, to undertake the reforming it; you had better convince your ſelf of the entire Reſemblance of the *Earth* and the *Moon:* Imagine then theſe two great Bowls held up in the Heavens; you know that the *Sun* always enlightens the one half of a Body that is round, and the other half is in the Shadow; there is then one half of the *Earth*, and one half of the *Moon* which is enlightened by the *Sun*; that is, one half which is Day, and the other half which is Night. Obſerve alſo, that as a Ball has leſs force after it has been ſtruck againſt a Wall, and rebounds to the other ſide, ſo is Light weakned when it is reflected. The Pale Light which comes to us from the *Moon*, is the very Light of the *Sun*, but it cannot come to us from the *Moon*, but by Reflection; it has loſt much of the Force and Luſtre it had when it came directly from the *Sun* upon the *Moon*; and that bright Light which ſhines directly upon us from the *Sun*, and which the *Earth* reflects

reflects upon the *Moon*, is as pale and weak when it arrives there; ſo that the Light which appears to us in the *Moon*, and enlightens our Nights, is the Part of the *Moon* which has Day; and that Part of the Earth which has Day, when it is oppoſite to the Part of the *Moon* which has Night, gives Light to it: All depends upon this, how the *Moon* and the *Earth* behold one another. At the beginning of the Month we don't ſee the *Moon*, becauſe ſhe is between the *Sun* and us; that half of her which has Day, is then turned towards the *Sun*; and that half which has Night, turned towards us; we can't ſee it then, becauſe it has no Light upon it; but that half of the *Moon* which has Night, being turned to the half of the *Earth* which has Day, ſees us without being perceived, and we then appear to them, juſt as the full *Moon* does to us; ſo that, as I may ſay, the Inhabitants of the *Moon* have then a full *Earth*; but the *Moon* being advanced upon her Circle of a Month,

comes

comes from under the *Sun*, and begins to turn towards us a little Corner of the half which is Light, that is, the Creſcent; then thoſe Parts of the *Moon* which have Night don't ſee all the half of the *Earth* which has Day, and we are then in the Wain to them.

I underſtand you perfectly, *ſays the Counteſs*, without Heſitation, I can comprehend the reſt at Pleaſure, and I have nothing to do but think a Moment, and bring the *Moon* upon her Circle of a Month. I ſee in general that, the *Inhabitants* of the *Moon* have a Month quite contrary to us; when we have a full *Moon*, their half of the *Moon* which is Light, is turned to our half of the *Earth* which is Dark; they don't ſee us at all, and they have then a New *Earth*, this is plain. I would not ſtand the Reproach of requiring a long Explication on ſo eaſy a Point: But, now tell me, how come the *Eclipſes*? You may eaſily gueſs that, *Madam*, when it is new Moon, ſhe is between the *Sun* and *Us*, and all her dark Half

is

is turned towards us who have Light, that obſcure Shadow is caſt upon us: If the *Moon* be directly under the *Sun*, that Shadow hides him from us, and at the ſame Time obſcures a part of that half of the *Earth* which is Light, which was ſeen by that half of the *Moon* which was Dark, here then is an *Eclipſe* of the *Sun* to us during our Day, and an *Eclipſe* of the *Earth* to the *Moon* during her Night. When it is full *Moon*, the *Earth* is between her and the *Sun*, and all the Dark half of the *Earth* is turned towards all the Light half of the *Moon*; the Shadow then of the *Earth* caſts it ſelf towards the *Moon*, and if it falls on the *Moon*, it obſcures that Light half which we ſee, which then has Day, and hinders the *Sun* from ſhining on it: Here then is an *Eclipſe* of the *Moon* to us during our Night, and an *Eclipſe* of the *Sun* to the *Moon* during her Day: But the Reaſon that we have not *Eclipſes* every Time that the *Moon* is between the *Sun* and the *Earth*, or the *Earth* between

tween the *Sun* and the *Moon*, is becauſe theſe *three* Bodies are not exactly placed in a right Line, and by conſequence that which ſhould make the Eclipſe, caſt its Shadow a little beſide that which ſhould be obſcured.

I am ſurpriz'd, *ſays the Counteſs*, that there ſhould be ſo little Myſtery in Eclipſes, and that the whole World ſhould not know the Cauſe of 'em. Nor ever will, *ſaid I*, as ſome People go about it. In the *Eaſt Indies*, when the *Sun* and the *Moon* are in Eclipſe, they believe a certain Devil, who has black Claws, is ſeizing on thoſe *Planets* with his Talons; and during that Time, the Rivers are covered with the Heads of *Indians*, who are up to the Neck in Water, becauſe they eſteem it a very devout Poſture, to implore the *Sun* and *Moon* to defend them againſt the Devil. In *America* they are perſuaded that the *Sun* and the *Moon*, when Eclipſed, are angry; And what is it they will not do to be reconciled with them? The *Greeks*, who were ſo refined alſo,

believed the *Moon* was then enchanted, and that the Magicians forced her to deſcend from Heaven, and ſhed a malignant Juice on the Plants; nay, what a pannick fear were we in, not many Years ago, at an Eclipſe of the Sun? When People hid themſelves in Cellars, and all the Philoſophers who treated of its Cauſe, could not perſuade them to come out till the Eclipſe was over?

In good faith, *ſays ſhe*, 'tis ſcandalous for Men to be ſuch Cowards; there ought to be a general Law of Mankind to prohibit the diſcourſing of Eclipſes, that we might not call to mind the Follies which have been *ſaid*, and *done*, upon that Subject. Your Law then, *ſays I*, muſt aboliſh even the Memory of all Things, and forbid us to ſpeak at all, for I know nothing in the World which is not a Monument of the Folly of Man.

But what d'ye think, *adds ſhe*, of the *Inhabitants* of the *Moon*, are they as fearful of an Eclipſe as we are? It would be a very good Jeſt to ſee the *Indians* there up to the Neck in Water; that the

the *Americans* ſhould believe the *Earth* angry with them; the *Greeks* fancy we were bewitched, and would deſtroy their Plants; in ſhort, that we ſhould cauſe the ſame Conſternation among them, as they do among us. And why not, Madam, I don't at all doubt it; for why ſhould the People in the *Moon* have more Wit than we? What right have *they* to fright us and not we *them?* For my part, *continued I laughing*, I believe that ſince a prodigious Company of Men have been, and ſtill are, ſuch Fools to adore the *Moon*, there certainly are People in the *Moon*, that worſhip the *Earth*, and that we are upon our Knees the one to the other. But ſure, *ſays ſhe*, we don't pretend to ſend any *Influences* to the *Moon*, and to give a Criſis to her Sick; if the People have any Wit in thoſe Parts, they'll ſoon deſtroy the Honour we flatter our ſelves with, and I fear, we ſhall have the Diſadvantage.

Madam, *ſays I*, don't fear that, d'ye think we are the only Fools of the Univerſe? Is it not confident with Igno-

rance to ſpread it ſelf every where? 'Tis true, we can only gueſs at the Folly of the People in the *Moon*, but I no more doubt it, than I do the moſt Authentick News that comes from thence. What authentick News comes from thence, *ſays ſhe*? That which the Learned bring us, *reply'd I*, who travel thither every Day with their Tubes and Teleſcopes; they'll tell you of their Diſcoveries, of Lands, Seas, Lakes, high Mountains, and deep Abyſſes.

Indeed, *anſwered ſhe*, I fancy they may diſcover Mountains and Abyſſes, becauſe of the remarkable Inequality; but how do they diſtinguiſh Lands and Seas? Very eaſily, Madam, for the Waters letting part of the Light paſs thro' them, ſend back but a very little, ſo that they appear afar off like ſo many dark Spots; whereas the Lands being ſolid, reflect the whole Light, and appear to be more bright and ſhining: The famous Monſieur *Caſſini*, a Man of the largeſt Acquaintance in the World with the Firmament, diſcovered in the

Moon

Moon ſomething which divided, then reunited, and ſunk in a ſort of Wells: We may with very much Probability ſuppoſe this was a River. Nay, they pretend to be ſo well acquainted with the ſeveral Places, that they have given them all Names; one they call *Copernicus*, another *Archimedes*, and a third *Galileus*; there is the *Caſpian Sea*, the *Black Lake*, the *Prophirite Mountains*; in ſhort, they have publiſhed ſuch exact Deſcriptions of the *Moon*, that a mere Almanack-maker will be no more to ſeek there, than I am in *Paris*.

I muſt own then, *ſays the Counteſs*, they are very exact; but what they ſay to the inſide of the Country, I would very fain know? 'Tis impoſſible, *replyed I*, the moſt learned Aſtronomers of our Age cannot inform you. You muſt ask that of *Aſtolfo*, who was carried into the *Moon* by St. *John*. I am going to tell you one of the agreeable Follies of *Arioſto*, which I'm confident you'll be well pleaſed to hear: I muſt confeſs he had better have let alone St. *John*,

whoſe Name is worthy of Reſpect; but 'tis a Poetical Licenſe, and muſt be allowed. The Poem, which is called *Orlando Furioſo*, is dedicated to a Cardinal, and a great Pope has honoured it with his Approbation, which is prefixed to ſeveral of the Editions: This is the Argument. Rowland, *Nephew to* Charlemagne, *runs mad, becauſe the fair* Angelica *prefers* Medore *before him.* Aſtolfo, *a Knight-Errant, finding himſelf one Day in the* Terreſtrial Paradiſe, *which was upon the Top of a very high Mountain, where he was carried by his flying Horſe, meets* St. John *there, who tells him, if he would have* Rowland *cured, he muſt make a Voyage with him into the* Moon. Aſtolfo, *who had a great Mind to ſee* New Countries, *did not ſtand much upon intreaty, there immediately came a fiery Chariot which carried the* Apoſtle *and the* Knight *up into the Air*; Aſtolfo *being no great Philoſopher, was ſurprized to find the* Moon *ſo much bigger than it appeared to him when he was upon the* Earth; *to*

ſee

ſee Rivers, Seas, Mountains, Cities, Foreſts, nay, what would have ſurprized me too, Nymphs *hunting in thoſe Foreſts; but that which appear'd moſt remarkable, was a Valley where you might find any Thing that was loſt in our* World, *of what Nature ſoever; Crowns, Riches, Fame, and an infinity of Hopes; the time we ſpend in Play, and in ſearching for the Philoſopher's Stone, the Alms we give after our Death, the Verſes we preſent to great Men and Princes, and the Sighs of Lovers.* I do'nt know, *ſays the Counteſs,* what became of the *Sighs of Lovers* in *Arioſto*'s Time, but I fancy there are very few of 'em aſcend to the *Moon* in our Days. Ah, Madam, *reply'd I,* how many does Your Ladyſhip ſend thither every Day? Thoſe that are addreſſed to you will make a conſiderable Heap; and I aſſure you the *Moon* keeps all ſafe that is loſt here below: Yet I muſt tell you, *Arioſto* does but whiſper it; tho' every Thing is there, even the *Donation* of *Conſtantine*; (the Popes having pretended

to be Maſters of *Rome* and *Italy*, by Virtue of a *Donation* which the Emperor *Conſtantine* made *Silveſter*; and the Truth on't is, no Body knows what's become of it:) But what do you think is not to be found in the *Moon*? *Folly:* All that ever was upon the Earth is kept there ſtill, but in lieu of it, 'tis not to be imagined how many *Wits* (if I may ſo call 'em) that are loſt here, are got up into the *Moon*, they are ſo many Vials full of a very ſubtile Liquor, which evaporates immediately, if it be not well ſtopped; and upon every one of theſe Vials the Names are written to whom the *Wits* belong: I think *Arioſto* has heaped 'em upon one another a little confuſedly, but for Order's ſake we will fancy 'em placed upon Shelves in a long Gallery; *Aſtolfo* wondered to ſee ſeveral Vials full, inſcribed with the Names of Perſons whom he thought conſiderable for their Wiſdom. To confeſs the Truth, I begin to fear ſince I have entertained you with theſe philoſophical and poetical Viſions,

Mine

Mine there, is not very empty; however, 'tis ſome Conſolation to me, that while you are ſo attentive, you have a little Glaſs full, as well as your humble Servant: The good Knight found his own Wits among the reſt, and with the Apoſtle's leave ſnuffed it all up his Noſe, like ſo much *Hungary* Water; but *Arioſto* ſaid he did not carry it far, it returned again to the *Moon* a little after.

Well, he did not forget *Rowland*'s Vial, which was the Occaſion of his Voyage; but he was curſedly plagued to carry it, for *Heroes* Wits are naturally very heavy, and there did not want one Drop of it: To conclude, *Arioſto*, according to his laudable Cuſtom of ſaying whatever he pleaſes, addreſſes himſelf to his Miſtreſs in very beautiful Verſes.

* *Fair Miſtreſs, who for me to Heav'n ſhall fly,*
To bring again from thence my wandring Wit?
Which I ſtill loſe, ſince from that piercing Eye
The Dart came forth that firſt my Heart did hit:

* *Sir* John Harrington's *Tranſlation of* Arioſto.

Nor of my Loſs at all complain would I,
Might I but keep that which remaineth yet:
But if it ſtill decreaſe, within ſhort Space,
I doubt I ſhall be in Rowlando's *Caſe;*

Yet, well I wot where to recover mine,
Tho' not in Paradiſe, nor Cynthia's *Sphere,*
Yet doubtleſs in a Place no leſs Divine,
In that ſweet Face of yours, in that fair Hair,
That ruby Lip, in thoſe two Star-like Eyn,
There is my Wit, I know it wanders there,
And with my Lips, if you would give me leave,
I there would ſearch, I thence would it receive.

Is not this very pleaſant? To reaſon like *Arioſto*, the ſafeſt Way of loſing our Wits, is, to be in Love; for you ſee they don't go far from us, we may recover 'em again at our Lips; but when we loſe 'em by other Means, as for Example, by Philoſophizing, they are gone with a Jerk into the Moon, and there is no coming at 'em again when we would. However, *ſays the Counteſs*, our Vials have an honourable Station among the Philoſophers, when 'tis Forty to One, but Love fixes our Wits on an Object we cannot but be aſhamed of: But to take away mine entirely, pray tell me very

very ſeriouſly, if you believe there are any *Men* in the *Moon*, for methinks hitherto you have not been very poſitive: For my Part, *ſays I*, I don't believe there are *Men* in the *Moon*, for do but obſerve how much the Face of Nature is changed between this and *China*; other Viſages, Shapes, Manners; nay, almoſt other Principles of Reaſon; and therefore between *Us* and the *Moon* the Alteration muſt be much more conſiderable. In the Lands that have been lately diſcovered, we can ſcarce call the Inhabitants Men, they are rather Animals in Human Shape, and that too ſometimes very imperfect, almoſt without Human Reaſon; he therefore that will travel to the *Moon*, muſt not expect to find *Men* there.

What ſort of People are they then, *ſays the Counteſs*, with an Air of Impatience? Froth, Madam, *reply'd I*, I don't know; for put the Caſe that we our ſelves inhabited the *Moon*,

and were not Men, but rational Creatures; could we imagine, d'ye think, ſuch fantaſtical People upon the Earth, as Mankind is? Is it poſſible we ſhould have an Idea of ſo ſtrange a Compoſition, a Creature of ſuch fooliſh Paſſions, and ſuch wiſe Reflections? Granted but ſuch a Span of Life, and yet purſuing Views of ſuch Extent? So Learned in Trifles, and ſo ſtupidly Ignorant in Matters of the greateſt Importance? So much concern for Liberty, and yet ſuch great Inclinations to Servitude? So deſirous of Happineſs, and yet ſo very incapable of being ſo? The People in the *Moon* muſt be wiſe indeed to ſuppoſe all this of us. But don't we ſee our ſelves continually, and can't ſo much as gueſs how we were made? So that we are forced to ſay the Gods when they created us were drunk with *Nectar*; and when they were ſober again, could not chuſe but laugh at their own Handy-work. Well, well, *ſays the Counteſs*, we are ſafe enough then, they in the *Moon* know nothing of us; but

I could

I could wiſh we were a little better acquainted with them, for it troubles me that we ſhould ſee the *Moon* above us, and yet not know what is done there. Why, *ſays I*, are you not as much concerned for that part of the Earth which is not yet diſcovered? What Creatures inhabit it, and what they do there? For we and they are carried in the ſame Veſſel: They poſſeſs the Prow, and we the Poop, and yet there is no manner of Communication between us; they don't know at one end of the Ship who lives, or what is done at the other end; and you would know what paſſes in the *Moon*, which is another great Veſſel, ſailing in the Heavens at a vaſt diſtance from us.

Oh, *ſays ſhe*, for the *Earth* I reckon it all as good as diſcovered, and can gueſs at the People, tho' I never heard a Word of 'em; for 'tis certain they all very much reſemble us, and we may know 'em better when we have a mind to't; they'll ſtay where they are, and 'tis no more but going to ſee 'em; but

but we can't get into the *Moon* if we would, ſo that I deſpair of knowing what they do there. You'll laugh at me, *ſays I*, if I ſhould anſwer you ſeriouſly, perhaps I may deſerve it, and yet, I fancy, I can ſay a great deal to juſtify a ridiculous Thought that is juſt now come into my Head; nay, to uſe the Fool's beſt Argument, I'll lay a Wager I make you own (in ſpite of Reaſon) that one of theſe Days there may be a Communication between the *Earth* and the *Moon*, and who knows what great Advantages we may reap by it? Do but conſider *America* before it was diſcovered by *Columbus*, how profoundly Ignorant were thoſe People, they knew nothing at all of Arts and Sciences, they went naked, had no other Arms but Bows and Arrows, and did not apprehend they might be carried by Animals; they looked upon the Sea as a wide Space, not for the uſe of Men, that it was joined to the Heavens, and beyond it was nothing: 'Tis true, after having ſpent whole Years in hollowing

lowing the Trunks of great Trees with ſharp Stones, they put themſelves to Sea in theſe Trunks, and floated from Land to Land, as the Wind and Waves drove them; but how often was their Trough overſet, and they forced to recover it again by ſwimming? So that (except when they were on Land) it might be ſaid they were continually ſwimming: And yet had any one but told them of another kind of Navigation incomparably more perfect and uſeful than their own, that would eaſily convey over that infinite Space of Water, that they might ſtop in the middle of the Waves, and in ſome Senſe command the Winds, and make their Veſſel go faſt, or ſlow, as they pleaſed; in ſhort, that this impaſſable Ocean ſhould be no Obſtacle to their converſing with another different People; d'ye think they'd have believed you? And yet at laſt that Day is come; the unheard-of, and moſt ſurprizing Sight appears; vaſt great Bodies, with White Wings, are ſeen to fly upon the Sea, to vomit Fire from

from all Parts, and to caſt on their Shores an unknown People, all ſcaled with Iron, who diſpoſe and govern Monſters as they pleaſe; carry Thunder in their Hands, and overthrow and deſtroy who ever reſiſts them: From whence came they? Who brought them over the Sea? Who gave to them the Diſpoſal of the Fire of Heaven? Are they Gods? Are they the Offspring of the Sun? For certainly they are not Men. Do but conſider, Madam, the ſurprize of the *Americans*, there can be nothing greater; and after this, will any one ſay there ſhall never be a Communication between the *Moon* and the *Earth*. Did the *Americans* believe there would ever be any between them and *Europe*, till it came to paſs? 'Tis true, you muſt paſs this great Space of Air and Heaven which is between the *Earth* and the *Moon*; but did not thoſe vaſt Seas ſeem at firſt as impaſſable to the *Americans*? You rave, I think, *ſays ſhe*; Who denies it, Madam? *ſaid I.* Nay, but I'll prove it, *replies*

plies ſhe; I don't care for your bare owning it: Did you not own the *Americans* were ſo ignorant, that they had not the leaſt Conception of croſſing the Sea; but we, who know a great deal more than they, can imagine and fancy the going through the Air, though we are aſſured it is not to be done. There is ſomewhat more than Fancy, *replyed I*, when it has been already practiſed, for ſeveral have found the ſecret of faſtening Wings, which bear them up in the Air, to move them as they pleaſe, and to fly over Rivers, and from Steeple to Steeple; I cannot ſay indeed they have yet made an *Eagle*'s flight, or that it does not coſt now and then a Leg or an Arm to one of theſe New Birds; but this may ſerve to repreſent the firſt Planks that were launched on the Water, and which were the beginning of Navigation; there were no Veſſels then thought of to ſail round the World, and yet you ſee what great Ships are grown by little and little from thoſe rude Planks.

The

The *Art* of *Flying* is but newly invented, 'twill improve by degrees, and in time grow perfect; then we may fly as far as the *Moon*. We don't yet pretend to have diſcovered all Things, or that what we have diſcovered can receive no Addition; and therefore, pray let us agree, there are yet many Things to be done in the Ages to come. Were you to live a Thouſand Years, *ſays the Counteſs*, I can never believe you'll *fly*, but you muſt endanger your Neck. I will not, *replyed I*, be ſo unmannerly as to contradict a fair Lady; but tho' we can't learn the *Art* here, I hope you will allow they may fly better in the Moon; 'tis no great matter whether we go to them, or they come to us, we ſhall then be like the *Americans*, who knew nothing of Navigation, and yet there were very good Ships at t'other end of the World. Were it ſo, *ſays ſhe*, in a ſort of a Paſſion, the *Inhabitants* of the *Moon* would have been here before now. All in good time, *ſays I*, the *Europeans* were not in *America* till

till about ſome Six Thouſand Years; they were ſo long in improving Navigation to the Point of croſſing the Ocean. The *People* in the *Moon* have already made ſome ſhort Voyages in the Air; they are exerciſing continually, and by degrees will be more expert, then we ſhall ſee them, and God knows how we ſhall be ſurprized. It is unſufferable, *ſays ſhe*, you ſhould banter me at this rate, and juſtify your ridiculous Fancy by ſuch falſe Reaſoning. I'm going to demonſtrate, *ſays I*, you Reproach me very unjuſtly: Conſider, Madam, that the World is unfolded by degrees; for the Ancients were very poſitive, that the *Torrid* and *Frigid-Zones* were not habitable, by reaſon of their exceſſive Heat and Cold; and in the time of the *Romans*, the general Map of the World was but very little extended beyond that of their *Empire*; which, though in one reſpect, expreſſed much Grandeur, in another ſenſe, was a ſign of as great Ignorance; however, there were Men found both in very hot and

and in very cold Countries, ſo that you ſee the World is already increaſed; after that, it was thought that the *Ocean* covered the whole *Earth*, except what was then diſcovered: There was no talk then of the *Antipodes*, not ſo much as a thought of them, for who could fancy their Heels at top, and their Heads at bottom? And yet, after all their fine Reaſoning, the *Antipodes* were diſcovered; here's now another half of the World ſtarts up, and a new Reformation of the Map; methinks this, Madam, ſhould reſtrain us, and teach us not to be ſo poſitive in our Opinions, the World will unfold itſelf more to us hereafter; we ſhall then know the *People* in the *Moon*, as well as we do now the *Antipodes*; but all Things muſt be done in Order, the whole Earth muſt be diſcovered; and till we are perfectly acquainted with our own Habitation, we ſhall never know that of our Neighbours. Without fooling, *ſays the Counteſs*, looking earneſtly upon me, you are ſo very profound in this Point, that I begin

begin to think you are in earneſt, and believe what you ſay. Not ſo neither, *ſays I*, but I would ſhew you how eaſy it is to maintain a Chimerical Notion, that may perplex a Man of Underſtanding; but never convince him; there is not any Argument ſo perſuaſive as Truth, which has no need to exert all its Proofs, but enters naturally into our Underſtanding; and when once we have learn'd it, we do nothing but think of it. I thank you then, *ſays ſhe*, for impoſing on me no longer; for I confeſs your falſe Reaſoning diſturbed me, but now I ſhall ſleep very quietly, if you think fit to go Home.

The Third Evening's CONVERSATION.

Some Particulars concerning the World *in the* Moon, *and Proofs of the other* Planets *being likewiſe* Inhabited.

THE Counteſs was ſo intent upon her Notions, that ſhe would fain have engaged me next Day, to proceed where I left off; but I told her, ſince the *Moon* and *Stars* were become the Subject of our Diſcourſe, we ſhould truſt our Chymeras with no body elſe: At Night we went again into the Park, which was now wholly dedicated to our learned Converſation.

Well, Madam, *ſays I*, I have great News for you; that which I told you laſt Night, of the *Moon*'s being *inhabited*, may be otherwiſe now: There is a new

new Fancy got into my Head, which puts thoſe People in great Danger. I cannot, *ſays the Counteſs*, ſuffer ſuch *Whims* to take place. Yeſterday you were preparing me to receive a Viſit from the *Lunarians*, and now you would inſinuate there are no ſuch Folks in Nature: You muſt not trifle with me thus; once you would have me believe the *Moon* was *Inhabited*; I ſurmounted the Difficulty I had, and will now believe it. You are a little too nimble, *retly'd I*, did not I adviſe you never to be entirely convinced in Things of this nature, but to reſerve half your Underſtanding free and diſengaged, that you might admit of a contrary Opinion, if there ſhould be any occaſion. I care not for your Suppoſitions, *ſays ſhe*, let us come to Matter of Fact. Are we not to conſider the *Moon* at St. *Dennis?* No, *ſays I*, the *Moon* does not ſo much reſemble the *Earth*, as St. *Dennis* does *Paris:* The *Sun* draws *Vapours* from the *Earth*, and *Exhalations* from the *Water*, which mounting to a certain height in the Air, do

do there aſſemble and form the *Clouds*; theſe uncertain *Clouds* are driven irregularly round the *Globe*, ſometimes ſhadowing one Country, and ſometimes another; he then who beholds the *Earth* from afar off, will ſee frequent Alteration upon its Surface, becauſe a great Country overcaſt with *Clouds*, will appear dark or light, as the *Clouds* ſtay, or paſs over it; he'll ſee the *Spots* on the *Earth* often change their Place, and appear or diſappear as the *Clouds* remove; but we ſee none of theſe *changes* wrought upon the *Moon*, which would certainly be the ſame, were there but *Clouds* about her; but on the contrary, all her *Spots* are *fixed* and *certain*, and her light parts continue where they were at firſt, which indeed is a great Misfortune; for by this Reaſon, the *Sun* draws no *Exhalations* or *Vapours* above the *Moon*; ſo that it appears ſhe is a *Body* infinitely more hard, and ſolid than the *Earth*; whoſe ſubtile Parts are eaſily ſeparated from the reſt, and mount upwards as ſoon

ſoon as Heat puts them in Motion: But it muſt be a heap of Rock and Marble, where there is no Evaporation; beſides, *Exhalations* are ſo natural and neceſſary where there is *Water*, that there can be no *Water* at all, where there is no *Exhalation*; and what ſort of Inhabitants muſt thoſe be, whoſe Country affords no Water, is all Rock, and produces nothing? Very fine, *ſays ſhe*, you have forgot ſince you aſſured me, we might from hence diſtinguiſh *Seas* in the *Moon*. Pray, what is become of your *Caſpian* Sea, and your *Black Lake*? All Conjecture, Madam, *replyed I*, tho' for your Ladyſhip's Sake, I am very ſorry for it; for thoſe dark Places we took to be *Seas*, may perhaps be nothing but large Cavities; 'tis hard to gueſs right at ſo great a diſtance. But will this ſuffice then, *ſays ſhe*, to extirpate the People in the *Moon*? Not altogether, *replyed I*, we will neither determine *for*, nor *againſt* them. I muſt own my Weakneſs, (if it be one) *ſays ſhe*, I can't be ſo perfect-

ly undetermined as you would have me to be, but muſt believe one way or other; therefore pray fix me quickly in my Opinion, as to the *Inhabitants* of the *Moon*; preſerve or annihilate them, as you pleaſe; and yet, methinks I have a ſtrange Inclination for 'em, and would not have 'em deſtroyed, if it were poſſible to ſave them. You know, *ſays I*, Madam, I can deny you nothing; the Moon ſhall be no longer a Deſart, but to do you ſervice, we will re-people her. Since to all appearance the Spots in the Moon do not change, I can't conceive there are any Clouds about her, that ſometimes obſcure one part, and ſometimes another; yet this does not hinder, but that the Moon ſends forth Exhalations, and Vapours. Our Clouds which we ſee in the Air, are nothing but Exhalations and Vapours, which at their coming out of the Earth, were ſeparated into ſuch minute Particles, that they could not be diſcerned; but as they aſcend higher, they are condenſed by the Cold, and by the re-

union

union of their Parts, are rendered visible; after which they become great Clouds, which fluctuate in the Air, their improper Region, till they return back again in Rain; however these Exhalations and Vapours, sometimes keep themselves so dispersed, that they are imperceptible; or if they do assemble, it is in forming such subtile Dews that they cannot be discerned to fall from any Cloud. Now, as it seems incredible the *Moon* should be such a Mass, that all its parts are of an equal Solidity, all at rest one with another, and all incapable of any alterations from the efficacy of the *Sun:* I am sure we are yet unacquainted with such a Body: Marble it self is of another Nature, and even that which is most Solid, is subject to Change and Alteration; either from the secret and invisible Motion it has within it self, or from that which it receives from without: It may so happen that the Vapours which issue from the Moon, may not assemble round her in Clouds, and may not fall back again

in Rain, but only in Dews. It is ſufficient for this, that the Air with which the Moon is ſurrounded (for it is certain *She* is ſo, as well as the *Earth*) ſhould ſomewhat vary from *our* Air, and the Vapours of the *Moon* be a little different from thoſe of the *Earth*, which is very probable. Hereupon the Matter being otherwiſe diſpoſed in the Moon than on the Earth, the Effects muſt be different; though it is of no great Conſequence whether they are or no; for from the Moment we have found an inward Motion in the Parts of the Moon, or one produced by foreign Cauſes, here is enough for the new Birth of its Inhabitants, and a ſufficient and neceſſary Fund for their Subſiſtance. This will furniſh us with Corn, Fruit, Water, and what elſe we pleaſe; I mean according to the Cuſtom or Manner of the Moon, which I do not pretend to know; and all proportioned to the Wants and Uſes of the Inhabitants, with whom I pretend to be as little acquainted.

That

That is to ſay, replyed the *Counteſs*, you know all is very well, without knowing how it is ſo, which is a great deal of Ignorance founded upon a very little Knowledge; however, I comfort my ſelf, that you have given the Moon her Inhabitants again, and have envelop'd her in an Air of her own, without which a Planet would ſeem to me but very naked.

It is theſe two different Airs, *Madam*, that hinder the Communication of the two Planets; *if* it was only *flying*, as I told you Yeſterday, who knows but we might improve it to Perfection, tho' I confeſs there is but little Hopes of it; the great Diſtance between the Moon and the Earth is a Difficulty not eaſily to be ſurmounted; yet were the Diſtance but inconſiderable, and the two Planets almoſt contiguous, it would be ſtill impoſſible to paſs from the Air of the one, into the Air of the other: The Water is the Air of Fiſhes, they never paſs into the Air of the Birds, nor the Birds into the Air of the Fiſh; and yet

'tis not the Diſtance that hinders them, but both are impriſoned by the Air they breath in; we find our Air conſiſts of thicker and groſſer Vapours than the Air of the Moon. So that one of her Inhabitants arriving at the Confines of our World, as ſoon as he enters our Air, will inevitably drown himſelf, and we ſhall ſee him fall dead on the Earth.

I ſhould rejoice, *ſays* the *Counteſs*, to ſee a Wreck of a good Number of theſe *Lunar* People, how pleaſant would it be to behold 'em lie ſcattered on the Ground, where we might conſider at our Eaſe, their extraordinary Figures? But, *replyed I*, ſuppoſe they could ſwim on the outward Surface of our Air, and be as curious to ſee us, as you are to ſee them; ſhould they Angle or caſt a Net for us, as for ſo many Fiſh, would that pleaſe you? Why not? *Says* the *Counteſs*, ſmiling; for my part I would go into their Nets of my own accord, were it but for the Pleaſure to ſee ſuch ſtrange Fiſhermen.

Conſi-

Conſider, Madam, you would be very ſick, when you were drawn to the Top of our Air, for there is not a Reſpiration in its whole Extent, as may be ſeen on the Tops of ſome very high Mountains; and I admire that they who have the Folly to believe that our *Fairies*, whom they allow to be Corporeal, and to inhabit the moſt pure and refined Air; do not tell us that the Reaſon why they give us ſuch ſhort and ſeldom Viſits, is that there are very few among them who can dive; and thoſe that can, if it be poſſible to get through the thick Air where we are, cannot ſtay half ſo long in it, as your Diving-Fowls can in the Water. Here then are natural Barricades, which defend the Paſſage out of our World, as well as the *Entrance into* the Moon; and as we can only gueſs at that World, let us fancy all we can of it. For Example, I will ſuppoſe that we may there ſee the Firmament, the Sun, and the Stars, of another Colour than what they are here; all theſe appear to us through a kind of

natural Opticks, which change and alter the Objects. Theſe Spectacles, as we may call 'em, are our Air, mixed as it is with Vapours and Exhalations, and which does not extend it ſelf very high. Some of our modern Philoſophers pretend, that of it ſelf it is Blue, as well as the Water of the Sea, and that this Colour neither appears in the one nor in the other, but at a great depth; the Firmament, ſay they, where the fixed Stars are placed, has no peculiar Light of its own, and by Conſequence muſt appear Black, but we ſee it thro' the Air, which is Blue, and therefore to us it appears Blue; which, if ſo, the Beams of the Sun and Stars cannot paſs through the Air without being tinged a little with its Colour, and loſing as much of their own; yet, were the Air of no Colour, it is very certain, that through a great Miſt the Light of a *Flambeaux* at ſome Diſtance appears Red, though it be not its true natural Colour. Our Air is nothing but a great Miſt, which changes the true Colour both

both of the Sky, Sun, and Stars; it belongs only to the Celeſtial Matter to bring us the Light and Colours as they really are in all their Purity; ſo that ſince the Air of the *Moon* is of another Nature than *our* Air, or is diverſified by another Colour, or at leaſt is another kind of Miſt, which varies the Colours of the *Celeſtial Bodies*; in ſhort, as to the People of the Moon, their Spectacles, through which they ſee every Thing, are changed.

If it be ſo, *ſays* the *Counteſs*, I prefer *this* Abode before *that* of the Moon; I cannot believe the *Celeſtial* Colours are ſo well mixed as they are here; for Inſtance, let us put Green Stars on a Red Sky, they can't be ſo agreeable as Stars of Gold on an Azure Firmament. One would think, Madam, you was chuſing a Petticoat, or a Suit of Knots; but, believe me, Nature does not want Fancy; leave it to her to chuſe Colours for the Moon, and I will engage they ſhall be well ſorted; ſhe will not fail to vary the Proſpect of the

Univerſe, at every different Point of Sight, and the Alteration ſhall always be very agreeable.

I know very well, *ſays* the *Counteſs*, her Skill in this Point; ſhe is not at the Charge of changing the *Objects*, but only the *Opticks*, and has the Credit of this great Variety, without being at any Expence; with a Blue Air, ſhe gives us a Blue Firmament; and perhaps with a Red Air, ſhe gives to the Inhabitants of the Moon a Red Firmament, and yet ſtill it is but the ſame Firmament; nay, I am of Opinion, ſhe has placed this ſort of Spectacles in our Imagination, through which we ſee all Things, and which to every particular Man change the Objects. *Alexander* looked on the Earth as a fit Place to eſtabliſh a great Empire, it ſeemed to *Celadon* a proper Reſidence for *Aſtræa*, and it appeared to a *Philoſopher*, a great Planet in the Heavens, covered with Fools: I do not believe the Sights vary more between the *Earth* and the *Moon*, than they do between the Fancies of *two* different *Men*. This

This change in our Imaginations, *ſays I*, is very ſurprizing; for they are ſtill the ſame Objects, tho' they appear different; when in the Moon we may ſee other Objects we do not ſee here, or at leaſt, not ſee all there, we do ſee here; perhaps in that Country they know nothing of the Dawn and the Twilight, before the Sun riſes, and after the Sun ſets; the Air which *encompaſſes*, and is *above* us, receives the Rays, ſo that they cannot ſtrike on the Earth; and being groſs, ſtops ſome of them, and ſends them to us, tho' indeed they were never naturally deſigned us; ſo that the Day-break, and the Twilight, are a favour which Nature beſtows on us; they are a Light which don't fall to our ſhare, and which ſhe gives us over and above our due; but in the Moon, where the Air is apparently more pure, and therefore not ſo proper to ſend down the Beams it receives from the Sun before his riſing, and after his ſetting; they have not that Light of Grace (as I may call it) which growing great-

er by degrees, does more agreeably prepare 'em for the arrival of the Sun, and which growing weaker, and diminiſhing by degrees, does inſenſibly prepare 'em for the Sun's departure: But they are in a profound Darkneſs, where a Curtain (as it were) is drawn all on a ſudden, their Eyes are immediately dazled with the whole Light of the Sun, in all its Glory and Brightneſs; ſo likewiſe, they are on a ſudden ſurprized with utter Darkneſs; the Night and the Day have no medium between them, but they fall in a Moment from one extreme into the other. The Rainbow likewiſe is not known to the Inhabitants of the Moon; for if the Dawn is an effect of the groſſneſs of the Air and Vapours, the Rainbow is formed in the Clouds, from whence the Rain falls; ſo that the moſt beautiful Things in the World, are produced by thoſe Things which have no Beauty at all. Since then there are no Vapours thick enough, nor no Clouds of Rain about the Moon, farewel Dawn, adieu Rainbow: What

muſt Lovers do for Similies to compare their Miſtreſſes to, in that Country, when ſuch an inexhauſtible Magazine of Compariſons is taken from them?

Nay, I ſhall never lay the loſs of their Compariſons much to Heart, *ſays* the *Counteſs*; and I think 'em well enough recompenced for the Loſs of our Dawn, and Rainbow; for by the ſame Reaſon, they have neither Thunder nor Lightning, both which are formed in the Clouds; how glorious are their Days, the Sun continually ſhining? How pleaſant their Nights, when not the leaſt Star is hid from them? They never hear of Storms or Tempeſts, which ſeems plain Effects of the Wrath of Heaven. Do ye think then they ſtand in need of our Pity? You are deſcribing the Moon, *replyed I*, like an inchanted Iſland; but do ye think it is ſo pleaſant to have a ſcorching Sun always over our Head, where the Days are fifteen times as long as ours, and not the leaſt Cloud to moderate its Heat? Though I fancy it is for this Reaſon that Nature has made great

great Cavities in the Moon; we can diſcern them eaſily with Our Teleſcopes, for they are not Mountains, but ſo many Wells or Vaults in the middle of a Plain; and how can we tell but the Inhabitants of the Moon, (being continually broiled by the exceſſive Heat of the Sun) retire into thoſe great Wells; perhaps they live no where elſe, and it is there they build them Cities; for we ſtill ſee in the Ruins of Old *Rome*, that *Part* of the City which was under Ground, was almoſt as large as *That* which was above. We need but take that Part away, and the reſt would remain like one of theſe Lunar Towns; the whole People reſide in Wells, and from one Well to another there are ſubterraneous Paſſages for the Communication of the Inhabitants. I perceive, Madam, you laugh at me, and you are welcome; but to be free with your Ladyſhip, the ridicule turns more againſt *you* than *me*: For you believe the People in the Moon muſt live upon the Surface of their Planet, becauſe we do

do ſo upon Ours, but the contrary is evident, for as we dwell upon the Superficies of our Planet, they cannot dwell upon the Superficices of Theirs; if things differ ſo much in This World, what muſt they do in Another?

It is no matter, *ſays* the *Counteſs*, I can never ſuffer the Inhabitants of the Moon to live in perpetual Darkneſs. You will be more concerned for them, Madam, when I tell you that one of the ancient Philoſophers long ſince diſcovered the Moon to be the Reſidence of Bleſſed Souls departed out of this Life, and that all their Happineſs conſiſted in hearing the *Muſic* of the *Spheres* which is made by the Motion of the Celeſtial Bodies: And that Philoſopher pretending to know exactly all they do there, he tells you, that when the Moon is obſcured by the Shadow of the Earth, they no longer hear the heavenly Harmony, but howl like ſo many Souls in Purgatory; ſo that the Moon taking Pity on them, makes all the haſte ſhe can to get into the Light again.

again. Methinks then, *ſays the Counteſs*, we ſhould now and then ſee ſome of theſe Bleſſed Souls arrive here from the Moon, for certainly they are ſent to us; and between the two Planets, ſome think, there is a ſufficient Proviſion made for the Felicity of Souls, by their Tranſportation into a new World. I confeſs indeed, *replyed I*, it would be very pleaſant to ſee new Worlds; ſuch a Voyage, though but in Imagination, is very delightful; but what would it be in Effect? It would be much better certainly than to go to *Japan*, which at beſt, is but crawling from one end of the Globe to the other, and after all to ſee nothing but Men. Well then, *ſays the Counteſs*, let us travel over the Planets as faſt as we can; what ſhould hinder us? Let us place our ſelves at all the different Proſpects, and from thence conſider the Univerſe. But firſt, have we any more to ſee in the Moon? Yes, Madam, *replyed I*, our Deſcription of that World is not entirely exhauſted; you cannot but remember that the two Move-

Movements, which turn the Moon on herſelf and about us, being equal; the one always preſents to our Eyes that part, of which the Other muſt conſequently deprive us; and ſo ſhe always to us wears the ſame Face: We have then but one Moiety of her which looks on us, and as the Moon muſt be ſuppoſed not to turn on her own Center, in reſpect to us, that Moiety which ſees us always, and that which never ſees us, remains fixed in the ſame Point of the Firmament. When it is Night with her, and her Nights are equal to fifteen of our Days, ſhe at firſt ſees but a little Corner of the Earth enlightened, after that a larger Spot, and ſo almoſt by hourly Gradations, ſpread her Light till it covers the whole Face of the Earth; whereas theſe ſame Changes do not appear to us to affect the Moon, but from one Night to another, becauſe we loſe her a long time out of our Sight. I would give any thing that I could poſſibly divine the awkard Reaſonings of the Philoſophers of their World, upon our Earth's appearing immoveable to them, when

when all the other Celeſtial Bodies riſe and ſet over their Heads, within the Compaſs of fifteen Days. It is plain they attribute this Immoveability to her Bigneſs, for ſhe is forty times larger than the Moon, and when their Poets have a mind to extol indolent Princes, I doubt not but they take care to compare their Inactivity to this Majeſtick Repoſe of the Earth. However, this Opinion is attended with one Difficulty; they muſt very ſenſibly perceive in the Moon, that our Earth turns upon her own Center. For Inſtance, imagine that *Europe*, *Aſia*, and *America* preſent themſelves one after another to them in Miniature, and in different Shapes and Figures, almoſt as we ſee them upon our Maps. Now this Sight muſt be a Novelty to ſuch Travellers as paſs from that Moiety of the Moon which *never* ſees us, to that which *always* does. Good God! How cautious would they be of believing the Relation of the firſt Travellers, who ſhould ſpeak of it after their Return to that great

great Country, to which we are ſo utterly unknown? Now I fancy, *ſays* the *Counteſs*, that they make a ſort of Pilgrimage from one Side of their Country to the other, for their Diſcoveries in our World, and that there are certain Honours and Privileges aſſigned to ſuch, as have once in their Lives had a View of our groſs Planet. At leaſt, *replyed I*, thoſe who have had this View obtained the Privilege of being better lighted, during their Nights, the Reſidence in the other Moiety of the Moon muſt of Neceſſity be much leſs commodious in that reſpect. But let us continue the Journey we propoſed to take, Madam, from one Planet to another, for we have now had a pretty curious View of the *Moon*.

As we leave the *Moon*, on that ſide next the Sun, we ſee *Venus*, which puts me again in mind of St. *Dennis*: *Venus* turns upon her ſelf, and round the Sun, as well as the Moon; they likewiſe diſcover by *their* Teleſcopes, that *Venus*, like the Moon (if I may ſpeak after the

the ſame Manner) is ſometimes New, ſometimes Full, and ſometimes in the Wane, according to the different Situations ſhe is in, with Reſpect of the Earth.

The Moon, to all Appearance, is inhabited, why ſhould not *Venus* be ſo too? You are ſo full of your *Whys*, and your *Wherefores*, *ſays the Counteſs*, interrupting me, that I fancy you are ſending Colonies to *all* the Planets. You may be certain, Madam, that is my Intention, and I ſee no reaſon to the contrary; we find that *all* the *Planets* are of the ſame Nature, all obſcure Bodies, which receive no Light but from the Sun, and then ſend it to one another; their Motions are the ſame, ſo that hitherto they are alike; and yet if we are to believe that theſe vaſt Bodies are not inhabited, I think they were made but to little Purpoſe; why ſhould Nature be ſo partial, as to except only the Earth? But let who will ſay the contrary, I muſt believe the *Planets* are peopled as well as the *Earth*. I find, *ſays the Counteſs*, you have been very well confirmed in your No-

Notions this pretty while: It was but ſome Moments ſince, that the Moon was a Deſart, and you were in no Concern at it; and at this Inſtant, I ſee you would be in a violent Paſſion, if any one ſhould preſume to ſay, that all the Planets are not as well ſtocked with Inhabitants as the Earth. It is true, Madam, at the Inſtant you ſurprized me with your Objections, if you had diſputed with me, the Inhabitants of the Planets, I ſhould not only have maintained their Exiſtence, but perhaps likewiſe have treated on their Creation. We have our Seaſons of Credulity, and I never believed theſe things more firmly than at that Juncture: And even now, and when my Senſes are ſomewhat cooler on the Matter; I cannot help thinking it would be ſtrange that the Earth ſhould be ſo well peopled, and the other Planets not inhabited at all: For do you believe we diſcover (as I may ſay) all the Inhabitants of the Earth? There are as many Kinds of inviſible, as viſible Creatures; we

we ſee from the *Elephant* to the very *Piſmire*, beyond which our Sight fails us, and yet counting from that minute Creature, there are an infinity of leſſer Animals, which would be imperceptible, without the aid of Glaſſes. We ſee with Magnifying Glaſſes that the leaſt Drop of Rain Water, Vinegar, and all other Liquids, are full of little Fiſhes, or Serpents, which we could never have ſuſpected there; and there is ſome Reaſon to believe, that the Taſtes which theſe little Liquids gives, proceeds from the Stingings and Purgency of thoſe little Animals on the Tongue and Palate. Now mingling certain Things with any one of theſe Liquors, and expoſing them in the Sun, or letting them ſtand and corrupt, will produce a new Species of little Animals.

Several, even of the moſt ſolid Bodies, are nothing but an immenſe ſwarm of imperceptible Animals, who find for their reſpective Motions as much room and liberty as they require. Do but conſider this ſmall Leaf; why, it is a great World, inhabited

inhabited by little inviſible Worms, of a vaſt extent, what Mountains, what Abyſſes are there in it? The Inſects on one ſide, know no more of their fellow Creatures on the other, than you and I can tell what they are now doing at the Antipodes: Does it not ſtand more to reaſon then, that a great Planet ſhould be inhabited? In the hardeſt Stones, for Example, in Marble, there are an infinity of Worms, which fill up the *Vacuums*, and feed upon the Subſtance of the Stone; fancy then Millions of living Creatures to ſubſiſt many Years on a Grain of Sand; ſo that were the Moon but one continued Rock, I would ſooner allow her to be gnawed by theſe inviſible Mites, than not to be inhabited: In ſhort every Thing is animated; imagine then thoſe Animals which are yet undiſcovered, and add them and thoſe which are but lately diſcovered, to thoſe we have always ſeen, you will find the Earth ſwarms with Inhabitants, and that Nature has ſo liberally furniſhed it with

with Animals, that ſhe is not at all concerned for our not ſeeing above one half of them: Why then ſhould Nature which is fruitful to an Exceſs here, be ſo very barren in the reſt of the Planets, as to produce no living Thing in 'em? I muſt one, *ſays* the *Counteſs*, you have convinced my Reaſon, but you have confounded my Fancy, with ſuch Variety, that I can't imagine how Nature, which abhors Repetition, ſhould produce ſo many different Kinds. There is no need of Fancy, Madam, do but truſt your Eyes, and you will eaſily perceive how Nature diverſifies in theſe ſeveral Worlds.

All Human Faces, in general, are of the ſame Model, and yet the *Europeans* and the *Africans* have two particular Moulds, nay, commonly every Family have a different Aſpect; what Secret then has Nature to ſhew ſo much Variety in the ſingle Face? Our World in reſpect of the Univerſe, is but a little Family; all whoſe Faces have ſome Reſemblance; in another Planet, there

is

is another Family, whoſe Faces have a different Air and make, the Difference too increaſes with the Diſtance, for whoſoever ſhould ſee an Inhabitant of the Moon, and an Inhabitant of the Earth, would ſoon perceive they were nearer Neighbours than one of the Earth, and one of *Saturn*: Here, for Example, we have the uſe of Voice, in another World they ſpeak by Signs, and at a greater Diſtance they do not ſpeak at all; here our Reaſon is formed by Experience, in the next World, Experience contributes but little towards it; and in the next to that, old Men know no more than Children; *here* we are troubled more with what is to come, than with what is paſt; in the *next* World they are more troubled for what is paſt, than what is to come; and farther off, they are not concerned with either, which by the Way, I think, is much the better: Here it is thought we want a *Sixth* Senſe, which would teach us many Things, of which we are now ignorant; this *Sixth* Senſe is apparently

in another World, where they want one of the Five which we enjoy; nay, perhaps there is a much greater Number of Senſes, but in the Partition we have made of 'em with the Inhabitants of the other Planets, there are but Five fallen to our Share, with which we are well contented, for want of being acquainted with the reſt: Our Sciences have Bounds, which the Wit of Man could never paſs; there is a Point where they fail us on a ſudden, the reſt is reſerved for other Worlds, where ſomewhat which we know is unknown to them. This Planet enjoys the Pleaſures of Love, but lies deſolate in ſeveral Places by the Fury of War; in another Planet they enjoy perpetual Peace, yet in the midſt of that Peace, know nothing of Love, and Time lies on their Hands; in a Word, that which Nature practiſes *here* in *little*, in diſtributing her Gifts among Mankind; ſhe does at *large* in *other* Worlds, where ſhe makes uſe of that admirable Secret ſhe has to diverſify all Things, and at the ſame Time makes

makes 'em equal, by compenſating for the inequality.

But is it not time, Madam, now to be ſerious, how will you diſpoſe of all theſe Notions? Trouble not your ſelf, *ſays ſhe*, Fancy is a great Traveller; I already comprehend all theſe Worlds, and form to my ſelf their different Characters and Cuſtoms; ſome of them, I aſſure you, are very extraordinary; I ſee at this Moment, a thouſand various Figures, tho' I cannot well deſcribe them. O leave them, *replyed I*, to your Dreams, we ſhall know To-morrow whether they repreſent the Matter faithfully, and what they have taught you, in Relation to the Inhabitants of any of the Planets.

The Fourth Evening's Converſation.

Some Particulars concerning the Worlds *of* Venus, Mercury, Mars, Jupiter, *and* Saturn.

THE Counteſs's Dreams were not very ſucceſsful; they ſtill repreſented to her, Objects, ſuch as we are acquainted with here on Earth; and I had room to reproach her Ladyſhip, as thoſe People do us at the Sight of our regular Pictures, who themſelves make only wild and groteſque Paintings. Well, ſay they, this is only an Imitation of Men, there is no manner of Fancy in it. We were therefore forced to conclude our ſelves ignorant, what ſort of Inhabitants all theſe Planets had, and content our ſelves only

only to gueſs at them, and continue the Voyage we had begun thro' the Worlds.

We were come to *Venus*, and I told her, that Planet certainly turned on it ſelf, though no Body could tell in what Time, and conſequently were ignorant how long her Day laſted; but her Year was compoſed of eight Months, becauſe it is in that Time ſhe turns round the Sun; and ſeeing *Venus* is forty times leſs than the Earth, the Earth appears (to them in *Venus*) to be a Planet forty times bigger than *Venus* appears to us on the Earth; and as the Moon is forty times leſſer than the Earth, ſo ſhe ſeems to be juſt of the ſame Magnitude, to the Inhabitants of *Venus*, as *Venus* ſeems here to us.

I ſee then, *ſays the Counteſs*, that the Earth is not to *Venus*, what *Venus* is to the Earth; I mean, that the Earth is too big to be the Mother of Love, or the Shepherd's Star to *Venus*; but the Moon which appears to *Venus*, of the ſame bigneſs that *Venus* appears to us,

is aſſigned to be the Mother of Love, and Shepherd's Star to *Venus*; for ſuch Names are only proper for a little briſk airy Planet, bright, and ſhining as the Goddeſs herſelf. O, bleſſed Moon, how happy art thou to preſide over the Amours of thoſe Inhabitants of *Venus*, who muſt be ſuch Maſters of Gallantry! O, doubtleſs, *ſays I*, the very common People of *Venus* are all *Celadons* and *Sylvanders*, and their moſt trivial Diſcourſes are infinitely finer than any in *Clelia*. Their very Climate inſpires Love: *Venus* is much nearer than the Earth is to the Sun, from whence ſhe receives a more vigorous and active Influence.

I find, *ſays the Counteſs*, it is eaſy enough to gueſs at the Inhabitants of *Venus*; they reſemble what I have read of the *Moors* of *Granada*, who were a little black People, ſcorched with the Sun, Witty, full of Fire, very Amorous, much inclined to Muſick and Poetry, and ever inventing Maſques and Turnaments in Honour of their Miſtreſſes.

Pardon

Pardon me, Madam, *ſays I*, you are little acquainted with the Planet; *Granada* in all its Glory, was a perfect *Greenland* to it; and your gallant *Moors*, in compariſon with that People, were as ſtupid as ſo many *Laplanders*.

But what do ye think then of the Inhabitants of *Mercury?* They are yet nearer to the Sun, and are ſo full of Fire, that they are abſolutely Mad; I fancy they have no Memory at all, no more than moſt of the *Negroes*; that they make no Reflections, and what they do is by ſudden Starts, and perfect Hap-hazard; in ſhort, *Mercury* is the Bedlam of the Univerſe; the Sun appears to them much greater than it does to us, becauſe they are much nearer to it than we; it ſends them ſo vaſt and ſtrong a Light, that the moſt glorious Day here, would be no more with them, than a declining Twilight: I know not if any can diſtinguiſh Objects; but the Heat to which they are accuſtomed, is ſo exceſſive, that they

would be ſtarved with Cold in the Torrid Zone; their Year is but three Months, but we know not the exact length of their Day, becauſe *Mercury* is ſo little, and ſo near the Sun; it is (as it were) loſt in his Rays, and is very hardly diſcovered by the Aſtronomers; ſo that they cannot obſerve how it moves on its Center; but becauſe it is ſo ſmall, they fancy it compleats its Motion in a little Time; ſo that by Conſequence, the Day there is very ſhort, and the Sun appears to them like a vaſt fiery Furnace at a little Diſtance, whoſe Motion is prodigiouſly ſwift and rapid: This is ſo much the better for them, ſince it is evident they muſt long for Night; and during their Night, *Venus* and the Earth (which muſt appear conſiderably big) give Light to them: As for the other Planets which are beyond the Earth, towards the Firmament, they appear leſs to them in *Mercury*, than they do to us here, and they receive but little Light from them, perhaps none at all; the fixed Stars likewiſe

wiſe ſeem leſs to them, and ſome of'em totally diſappear, which, were I there, I ſhould eſteem a very great loſs. I ſhould be very uneaſiy to ſee this large *Convex* ſtudded with but few Stars, and thoſe of the leaſt Magnitude and Luſtre.

What ſignifies the loſs of a few fixed Stars? *Says the Counteſs*; I pity them for the exceſſive Heat they endure; let us give them ſome relief, and ſend *Mercury* a few of the refreſhing Showers they have ſometimes four Months together, in the hotteſt Countries, during their greateſt Extremity. Your Fancy is good, Madam, *replyed I*, but we will relieve them another way: In *China* there are Countries which are extreamly hot by their Situation; yet, in *July* and *Auguſt* are ſo cold, that the Rivers are Frozen; the Reaſon is, they are full of *Salt-Petre*, which being exhaled in great abundance, by the exceſſive heat of the Sun, makes a perfect Winter at Mid-Summer. We will fill the little Planet with Salt-Petre, and let the Sun

ſhine as hot as he pleaſes. And yet after all, who knows but the Inhabitants of *Mercury* may have no occaſion either for Rain, or *Salt-Petre?* If it is a certain Truth, that Nature never gives Life to any Creature, but where that Creature may live; then thro' Cuſtom, and Ignorance of a better Life, thoſe People may live happily.

After *Mercury*, comes the *Sun*; but there is no poſſibility of Peopling it, nor no room left for a Wherefore. By the Earth which is inhabited, we judge that other Bodies of the ſame Nature may be likewiſe inhabited: But the Sun is a Body not like the Earth, or any of the Planets; the Sun is the Source or Fountain of Light, which tho' it is ſent from one Planet to another, and receives ſeveral Alterations by the way, yet all originally proceeds from the Sun: He draws from himſelf that precious Subſtance which he emits from all ſides, and which reflects when it meets with a ſolid Body, and ſpreads from one Planet to another thoſe long

and

and vaſt Trains of Light which croſs, ſtrike thro', and intermingle in a thouſand different Faſhions, and make (if I may ſo ſay,) the richeſt Tiſſues in the World. The Sun likewiſe is placed in the Center, from whence with moſt Convenience, he may equally diſtribute and animate by his Heat; it is then a particular Body, but what kind of Body has often puzled better Heads than mine. It was thought formerly a Body of pure Fire, and that Opinion paſs'd currant till the beginning of this Age; when they perceived ſeveral Spots on its Surface. A little after they had diſcovered new Planets, (as we ſhall preſently hear of) theſe ſome ſaid were the Spots; for thoſe Planets moving round the Sun, when they turned their Dark half to us, muſt neceſſarily hide part of it; and had not the Learned with theſe pretended Planets made their Court before to moſt of the Princes in *Europe*, giving the Name of this Prince to One, and of that Prince to Another Planet; I believe they would have quarrelled who ſhould be

Maſter of theſe Spots, that they might have named them as they pleaſed.

I cannot approve that Notion; 'twas but the other Day, *ſays the Counteſs*, you were deſcribing the Moon, and called ſeveral Places by the Names of the moſt famous Aſtronomers. I was pleaſed with the Fancy; for ſince the Princes have ſeized on the Earth; it is fit the Philoſophers (who are as proud as the beſt of them) ſhould reſerve the Heavens for themſelves without any Competitors. Oh! *Says I*, Trouble not your ſelf, the Philoſophers make the beſt Advantage of their Territories; and if they part with the leaſt Star, it is on very good Terms; but the Spots on the Sun are fallen to nothing; it is now diſcovered that they are not Planets, but Clouds, Streams, or Droſs, which riſe upon the Sun, ſometimes in a great Quantity, ſometimes in leſs; ſometimes they are dark, ſometimes clear, ſometimes they continue a great while, and ſometimes they diſappear as long. It ſeems the Sun is a Liquid Matter, ſome think

think of melted Gold, which ſeems to boil over continually, and by the force of its Motion, caſts the Scum or Droſs on its Surface, where it is conſumed, and others ariſe. Imagine then what ſtrange Bodies theſe are, when ſome of them are as big as the Earth: What a vaſt quantity muſt there be of this melted Gold, and what muſt be the Extent of this great Sea of Light and Fire which they call the Sun? Others ſay, the Sun appears through their Teleſcopes, full of Mountains, which vomit Fire continually, and are joined together like Millions of *Ætnas*. Yet there are thoſe who ſay theſe burning Mountains are pure Viſion, cauſed by a fault in the Spectacles; but what ſhall we Credit, if we muſt diſturſt our Teleſcopes, to which we owe the Knowledge of ſo many new Objects? But let the Sun be what it will, it cannot be at all proper for Habitation; and what pity 'tis, for how Pleaſant would it be? You might then be at the Center of the Univerſe, where you would ſee all the Planets

Planets turn regularly about you; but now we know nothing but extravagant Fancies, becauſe we do not ſtand in the proper Place; there is but one Place in the World where the Study or Knowledge of the Stars is eaſily obtained, and what pity it is there is no Body there. You forget your ſelf ſure, *ſays ſhe*, were you in the Sun you would ſee nothing, neither Planets nor fixed Stars; does not the Sun efface all? So that could there be any Inhabitants there, they might juſtly think themſelves the only People in Nature.

I own, *ſays I*, my Miſtake; I was thinking of the Situation of the Sun, and not of the effect of its Light: I thank you for your Correction; but muſt take the boldneſs to tell you, that you are in an Error, as well as my ſelf; for were there Inhabitants in the Sun, they would not ſee at all, either they could not bear the Strength of its Light, or for want of a due diſtance, they could not receive it; ſo that Things well conſidered, all the People there muſt

muſt be ſtark blind, which is another Reaſon why the Sun cannot be Inhabited; but let us purſue our Voyage. We are now arrived at the Center, which is always the Bottom, or loweſt Place of what is round; if we go on, we muſt aſcend; we ſhall find *Mercury*, *Venus*, the *Earth*, the *Moon*, all the *Planets* we have already viſited; the next is *Mars*, who affords nothing Curious that I know of; his Day is not quite an Hour longer than ours, but his Year is twice as much as ours; he is a little leſs than the Earth, and the Sun ſeems not altogether ſo large and ſo bright to him, as it appears to us: But let us leave *Mars*, he is not worth our ſtay: But, what a pretty Thing is *Jupiter*, with his Four Moons, or Yeomen of the Guard; they are Four little Planets that turn round him, as our Moon turns round us. But why, *ſays the Counteſs*, interrupting me, muſt there be Planets to turn round other Planets, that are no better than themſelves? I ſhould think it would be more regular and uniform, that all the Planets,

Planets, little and great, without any diſtinction, ſhould have one and the ſame Motion round the Sun.

Ah, Madam, *ſays I*, if you did but know what *Deſcartes*'s Whirlpools or Vortexes were (whoſe Name is terrible, but their Idea pleaſant) you would not ask as you do. Muſt my Head, *ſays ſhe*, ſmiling, turn round to comprehend them, or muſt I become a perfect Fool to underſtand the Myſteries of Philoſophy? Well, let the World ſay what it will, go on with your Whirlpools. I will, *ſays I*, and you ſhall ſee the Whirlpools are worthy of theſe Tranſports: That then which we call a Whirlpool, or Vortex, is a Maſs of Matter, whoſe Parts are ſeparated, or detached from one another, yet have all one uniform Motion; and at the ſame time, every one is allowed, or has a particular Motion of its own, provided it follows the general Motion: Thus a Vortex of Wind, or Whirlwind, is an infinity of little Particles of Air, which turn round all together, and involve whatever

whatever they meet with. You know the Planets are borne up by the Celeſtial Matter, which is prodigiouſly ſubtile and active; ſo that this great Maſs, or Ocean of Celeſtial Matter, which flows as far as from the Sun to the fixed Stars, turns round, and bears the Planets along with it, making them all turn after the ſame manner round the Sun, who poſſeſſes the Center: But in a longer, or a ſhorter time, according as they are farther or nearer in diſtance to it; there is nothing to the very Sun, which does not turn, but he turns on himſelf, becauſe he is juſt in the middle of this Celeſtial Matter; and you muſt know by the way, that were the Earth in his Place, it muſt turn on it ſelf, as the Sun does. This is the great Vortex, of which the Sun is Lord; yet at the ſame time, the Planets make little particular Vortexes, in imitation of that of the Sun, each of them in turning round the Sun, does at the ſame time turn round it ſelf, and makes a certain quantity of Celeſtial Matter turn round it likewiſe, which

which is always prepared to follow the Motion the Planet gives it, provided it is not diverted from its general Motion; this then is the particular Vortex of the Planet, which puſhes it as far as the ſtrength of its Motion reaches: And if by chance, a leſſer Planet falls into the Vortex of a greater Planet, it is immediately borne away by the greater, and is indiſpenſably forced to turn round it, tho' at the ſame time, the great Planet, the little Planet, and the Vortex which encloſes them, all turn round the Sun: It was thus at the beginning of the World, when we made the Moon follow us, becauſe ſhe was within the reach of our Vortex, and therefore wholly at our diſpoſal: *Jupiter* was ſtronger, or more fortunate than we, he had Four little Planets in his Neighbourhood, and he brought 'em all Four under his ſubjection; and no doubt, we, tho' a principal Planet, had had the ſame Fate, had we been within the Sphere of his Activity; he is ninety times bigger than the Earth, and would certainly

certainly have ſwallowed us into his Vortex; we had then been no more than a Moon in his Family, when now we have one to wait on us; ſo that you ſee the Advantage of Situation, decides often all our good Fortune.

But pray, *ſays ſhe*, who can aſſure us we ſhall continue as we do now? If we ſhould be ſuch Fools as to go near *Jupiter*, or he ſo Ambitious as to approach us, what will become of us? For if (as you ſay) the Celeſtial Matter is continually under this great Motion, it muſt needs agitate the Planets irregularly; ſometimes drive them together, and ſometimes ſeparate 'em. Luck is all, *ſays I*; we may win as well as loſe, and who knows, but we ſhould bring *Mercury* and *Venus* under our Government; they are little Planets, and cannot reſiſt us; but in this Particular, Madam, we need not hope or fear; the Planets keep within their own Bounds, and are obliged as the Kings of *China* were formerly, not to undertake new Conqueſts. Have you not ſeen when you put

put Water and Oyl together, the Oyl ſwims a top; and if to theſe two Liquors, you add a very little Liquor, the Oyl bears it up, and it will not ſink to the Water: But an heavier Liquor, of a juſt Weight, and it will paſs thro' the Oyl, which is too weak to ſuſtain it, and ſink till it comes to the Water, which is ſtrong enough to bear it up; ſo that in this Liquor, compoſed of two Liquors, which do not mingle, two Bodies of an equal weight, will naturally aſſume two different Places; the one will never aſcend, the other will never deſcend; if we put ſtill other Liquors, which do not mingle, and throw other Bodies on them, it will be the ſame Thing: Fancy then that the Celeſtial Matter which fills this great Vortex, has ſeveral reſting Places, one by another, whoſe weight are different, like that of Oyl, Water, and other Liquors; the Planets too are of a different Weight, and conſequently every Planet ſettles in that Place which has a juſt Strength to ſuſtain and keep it equilibrate; ſo you

ſee

ſee it is impoſſible it ſhould ever go beyond.

I apprehend very well, *ſays the Counteſs*, that theſe Weights keep their Stations regularly. Would to God, our World were as well regulated, and every one among us knew their proper Place. I am now in no fear of being overrun by *Jupiter*; and ſince he lets us alone in our Vortex, with our Moon, I don't envy him the Four which he has. Did you envy him, *replyed I*, you would do him wrong, for he has no more than what he has occaſion for; at the diſtance he is from the Sun, his *Moons* receive, and ſend him but a very weak Light; it is true, that as he turns upon himſelf in Ten Hours, his Nights, by conſequence, are but Five Hours long; ſo one would think there is no great occaſion for Four Moons, but there are other Things to be conſidered. Here, under the Poles, they have Six Months Day, and Six Months Night, becauſe the Poles are the two Extremities of the Earth, the fartheſt removed from

thoſe Places where the Sun is over 'em in a Perpendicular Line. The Moon ſeems to keep almoſt the ſame Courſe as the Sun, and if the Inhabitants of the Pole ſee the Sun during one half of his Courſe of a Year, and during the other half, do not ſee him at all; they ſee the Moon likewiſe during one half of her Courſe of a Month; that is, ſhe appears to them Fifteen Days, but they do not ſee her during the other half. *Jupiter*'s Year is as much as Twelve of ours, ſo that there muſt be two oppoſite Extremities in that Planet, where their Night and their Day are Six Years each. A Night Six Years long, is a little diſconſolate, and 'tis for that Reaſon, I ſuppoſe, they have Four Moons; that which (in regard to *Jupiter*) is uppermoſt, finiſhes its Courſe about him in Seventeen Days, the Second in Seven, the Third three Days and an half, and the Fourth in two and forty-Hours; and tho' they are ſo unfortunate as to have ſix Years Night, yet their Courſe being exactly divided into halves, they never

never paſs above one and twenty Hours, wherein they don't ſee at leaſt the laſt Moon, which is a great Comfort in ſo tedious a Darkneſs; ſo that be where you will, theſe Four Moons are ſometimes the prettieſt ſight imaginable; ſometimes they riſe all Four together, and then ſeparate according to the inequality of their Courſe; ſometimes they are all in their Meridian, ranged one above another; ſometimes you ſee 'em at equal diſtances on the Horizon; ſometimes when Two riſe, the other Two go down. O, how I ſhould love to ſee their perpetual Sport of Eclipſes; for there is not a Day paſſes, but they Eclipſe the Sun, or one another; and they are ſo accuſtomed to theſe Eclipſes in that Planet, that they are certainly Objects of Diverſion, and not of Fear as with us.

Well, *ſays the Counteſs*, I hope you will People theſe Four Moons, tho' you ſay they are but little ſecondary Planets, appointed to give Light to another Planet during its Night. Don't doubt

doubt it, *replyed I*, theſe Planets are not a jot the worſe to be inhabited, for being forced to turn round another Planet of greater Conſequence. I would have then, *ſays ſhe*, the People of theſe Four Moons to be ſo many Colonies under *Jupiter*'s Government; they ſhould, if it were poſſible, receive their Laws and Cuſtoms from him; and conſequently render him a kind of Homage, and not view his great Planet without Deference. Would it not be convenient too, *ſays I*, that they ſhould ſend Deputies with Addreſſes to him, to aſſure him of their Fidelity; for he has certainly a more abſolute Command over his Moon, than we have over ours; tho' his Power after all, is but imaginary, and conſiſts chiefly in making them afraid; for that Moon which is neareſt to him, ſees that he is three Hundred and ſixty times bigger than our Moon appears to us; for in truth, he is ſo much bigger than ſhe; he is alſo much nearer to them, than our Moon is to us, which makes him appear

pear the greater; ſo that this formidable Planet hangs continually over their Heads, at a very little diſtance; and if the *Gauls* were afraid heretofore, that the Heavens would fall on them, I think the Inhabitants of that Moon may well be apprehenſive that *Jupiter* will at ſome time or other overwhelm them. I fancy, *ſays ſhe*, they are poſſeſſed with that Fear, becauſe they are not concerned at Eclipſes: Every one has their peculiar Folly; we are afraid of an Eclipſe, and they, that *Jupiter* will fall on their Heads. It is very true, *ſays I*, the Inventor of the third Syſtem, I told you of t'other Night, the famous *Tycho Brache*, (one of the greateſt Aſtronomers that ever was,) did not apprehend the leaſt Danger from an Eclipſe, when every Body elſe was under the greateſt Conſternation; but what Apprehenſions do you think he entertained inſtead of them? This great Man was ſo unaccountably ſuperſtitious, that if an Hare did but croſs him, or an Old Woman bolt upon him at his firſt coming

out, he preſently looked upon his Journey to be Ominous, ſhut himſelf up for that Day, and would not meddle with the leaſt Buſineſs. It would be very unreaſonable, *replyed ſhe*, after ſuch a Man could not redeem himſelf from the Fear of Eclipſes, without falling into ſome other whimſy as troubleſome, that the Inhabitants of that Moon of *Jupiter*, whereof we were talking, ſhould come off upon eaſier Terms: But we will give them no Quarter; they ſhall come under the general Rule, and if they are free from one Errour, ſhall fall into another to put them upon Equivalent: But as I do not trouble my ſelf, becauſe I cannot gueſs what, pray clear another Difficulty to me, which has given me ſome Pain for ſeveral Minutes. Pray tell me, if the Earth be ſo little in compariſon of *Jupiter*, whether his Inhabitants do diſcover us? Indeed, I believe not, *ſays I*; for if we appear to him ninety times leſs than he appears to us, judge you if there be any poſſibility: Yet this we may reaſonably

nably conjecture, that there are Aſtronomers in *Jupiter*, who after they have made the moſt curious Teleſcopes, and taken the cleareſt Night for their Obſervations, may have diſcovered a little Planet in the Heavens, which they never ſaw before; if they publiſh their diſcovery, moſt People know not what they mean, or laugh at them for Fools; nay, the Philoſophers themſelves will not believe them, for fear of deſtroying their own Opinions, yet ſome few may be a little Curious; they continue their Obſervations, diſcover the little Planet again, and are now aſſured it is no Viſion; then they conclude it has a Motion round the Sun, and after a thouſand Obſervations, find that it compleats this Motion in a Year; and at laſt, (thanks to the Learned,) they know in *Jupiter* that our Earth is a World; every Body runs to ſee it at the end of a Teleſcope, though ſo little, that it is ſcarcely diſcoverable.

It muſt be Pleaſant, *ſays ſhe*, to ſee the Aſtronomers of both Planets, levelling their Tubes at one another, and mutually asking, what World is that? What People inhabit it? Not ſo faſt neither, *replyed I*; for though they may from *Jupiter* diſcover our Earth, yet they may not know us; that is, they don't in the leaſt ſuſpect it is inhabited; and ſhould any One there chance to have ſuch a Fancy, he might be ſufficiently ridiculed, if not proſecuted for it; for my part, I believe they have work enough to make Diſcoveries on their own Planet, not to trouble their Heads with ours; and it is ſo large, that if they have any ſuch Thing as Navigation, their *Chriſtopher Columbus* could never want Employment; why, I warrant you, they have not yet diſcovered the hundredth part of their Planet. But if *Mercury* is ſo little, they are all (as it were) near Neighbours, and it is but taking a Walk, to go round that Planet. But if we do not appear to 'em in *Jupiter*, they cannot certainly

ly diſcover *Venus* and *Mercury*, which are much leſs than the Earth, and at a greater diſtance; but in lieu of it, they ſee *Mars*, their own Four Moons, and *Saturn* with his; this I think is work enough for their Aſtronomers; and Nature has been ſo kind to conceal from them the reſt of the Univerſe.

Do you think it a Favour then, *ſays ſhe?* Yes certainly, *replyed I*, for there are ſixteen Planets in this great Vortex: Nature ſaves us the trouble of ſtudying the Motions of them all, and ſhows us but Seven, which I think is very obliging, though we know not how to value the Kindneſs, for we have recovered the other Nine which were hid from us, and ſo render the Science of Aſtronomy much more Difficult than Nature deſigned it.

If there are ſixteen Planets, *ſays ſhe*, *Saturn* muſt have five Moons. It is very true, *replyed I*, and two of theſe five are but lately diſcovered; but there is ſomewhat that is more remarkable, ſince his Year is thirty of ours, and

there are conſequently in him ſome Countries, where their Night is fifteen Years long; what can you imagine Nature has invented to give Light, during ſo dreadful a Night? Why, ſhe has not only given *Saturn* five Moons, but ſhe has encompaſſed him round with a great Circle or Ring; this being placed beyond the reach of the Shadow, which the Body of that Planet caſts, reflects the Light of the Sun continually on thoſe Places where they cannot ſee the Sun at all.

I proteſt, *ſays the Counteſs*, this is very ſurprizing, and yet all is contrived in ſuch great Order, that it is impoſſible not to think, but Nature took Time to conſider the Neceſſities of all Animate Beings, and that the diſpoſing of theſe Moons was not a work of Chance; for they are only divided among thoſe Planets which are fartheſt diſtant from the *Sun*, the *Earth*, *Jupiter*, *Saturn*; indeed it was not worth while to give any to *Mercury* or *Venus*, they have too much Light already; and they account

count their Nights (as ſhort as they are) a greater Bleſſing than their Day. But pray, why has not *Mars* a Moon too? It ſeems he has none, tho' he is much farther than the Earth from the Sun. It is very true, *ſays I*; no doubt but he has other helps, tho' we do not know them: You have ſeen the *Phoſphorus*, both liquid and dry, how it receives and imbibes the Rays of the Sun, and what a great Light it will caſt in a dark Place: Perhaps *Mars* has many great high Rocks, which are ſo many Natural *Phoſphorus*'s, which in the Day take in a certain proviſion of Light, and return it again at Night. What think you, Madam, is it not very Pleaſant, when the Sun is down, to ſee thoſe lighted Rocks, like ſo many glorious Illuminations, made without any Art, and which can do no manner of Hurt by their Heat? Beſides, there is a Species of Birds in *America*, who reflect ſuch a Light, that, you may read by it in the darkeſt Night; and who knows but *Mars* may have great Flocks

of theſe Birds, that as ſoon as it is Night, diſperſe themſelves into all Parts, and ſpread from their Wings another Day.

I am not at all contented, *ſays ſhe*, either with your Rocks, or your Birds; it is a pretty Fancy indeed, but it ſi e ſign that there ſhould be *Moons* in *Mars*, ſince Nature has given ſo many to *Saturn* and *Jupiter*, and if all the other Worlds that are diſtant from the *Sun*, have *Moons*, why ſhould *Mars* only be excepted? Ah, Madam, *ſays I*, when you are a little more dipp'd in Philoſophy, you will find Exceptions in the very beſt Syſtems; there are always ſome Things that agree extreamly well, but then there are others that do not accord at all, thoſe you muſt leave as you found them, if ever you intend to make an End: We will do ſo by *Mars*, if you pleaſe, and ſay no more of him, but return to *Saturn*. What d'ye think of this great Ring, in the Form of a Semi-Circle, that reaches from one End of the Horizon to the other, which reflecting the Light of the Sun, performs the

the Office of a continual Moon? And muſt we not inhabit this Ring too, *ſays ſhe*, ſmiling? I confeſs, *ſays I*, in the humour I am in, I could almoſt ſend Colonies every where; and yet I cannot well plant any there, it ſeems ſo irregular a Habitation; but for the five little Moons, they cannot chuſe but be inhabited; tho' ſome think this Ring is a Circle of Moons, which follow cloſe to one another, and have an equal Motion; and that the five little Moons fell out of this Circle; how many Worlds are there then in the Vortex of *Saturn*? But let it be how it will, the People in *Saturn* live very miſerably: It is true, this Ring gives Light to them, but it muſt be a very poor one, when the Sun ſeems to them but a little pale Star, whoſe Light and Heat cannot but be very weak at ſo great a Diſtance; they ſay *Greenland* is a perfect *Bagnio* in compariſon of that Planet, and that they would expire with Heat in our coldeſt Countries.

You give me, *ſays ſhe*, ſuch an Idea of *Saturn*, that makes me ſhake with Cold, and that of *Mercury*, puts me into a Fever. It cannot be otherwiſe, *replyed I*, for the two Worlds, which are the Extremities of this great Vortex, muſt be oppoſite in all Things. They muſt then, *ſays ſhe*, be very wiſe in *Saturn*, for you told me they were all Fools in *Mercury*. If they are not wiſe, *ſays I*, yet they have all the Appearances of being very Flegmatick: They are People that know not what it is to laugh, they take a Days time to anſwer the leaſt Queſtion you can ask them; and are ſo very grave, that were *Cato* living among them, they would think him a *Merry-Andrew*.

It is odd to conſider, *ſays ſhe*, that the Inhabitants of *Mercury* are all Life, and the Inhabitants of *Saturn* quite contrary; but among us ſome are brisk, and ſome are dull; it is, I ſuppoſe, becauſe our Earth is placed in the Middle of the other Worlds, and ſo we participate of both Extreams, there is no fixed

fixed or determinate Character; ſome are made like the Inhabitants of *Mercury*, others like thoſe of *Saturn*; we are a Mixture of the ſeveral Kinds that are found in the reſt of the Planets. Why, *ſays I*, do not you approve of the Idea? Methinks it is pleaſant to be compoſed of ſuch a fantaſtical Aſſembly, that one would think we were collected out of different Worlds; we need not travel, when we ſee the other Worlds in Epitome at home.

I am ſure, *ſays the Counteſs*, we have one great Convenience in the Situation of our World; it is not ſo hot as *Mercury* and *Venus*, nor ſo cold as *Jupiter* or *Saturn*; and our Country is ſo juſtly placed, that we have no Exceſs either of Heat or Cold. I have heard of a Philoſopher, who gave Thanks to Nature that he was born a Man and not a Beaſt, a *Greek* and not a *Barbarian*; and for my Part, I render Thanks that I am ſeated in the moſt temperate Planet of the Univerſe, and in one of the moſt temperate Regions of that Planet.

You have more Reaſon, *ſays I*, to give Thanks that you are Young and not Old; that you are Young and Handſom, and not Young and Ugly; that you are Young, Handſom, and a *French* Woman, and not Young, Handſom, and an *Italian*; theſe are other-gueſs Subjects for your Thanks, than the Situation of your Vortex, or the Temperature of your Country.

Pray Sir, *ſays ſhe*, let me give Thanks for all Things, to the very Vortex in which I am planted: Our Proportion of Happineſs is ſo very ſmall, that we ſhould loſe none, but improve continually what we have, and be grateful for every Thing, tho' never ſo common or inconſiderable. If nothing but exquiſite Pleaſure will ſerve us, we muſt wait a long time, and be ſure to pay too dear for it at laſt. I wiſh, *ſays I*, that Philoſophy was the Pleaſure you propoſe, that when you think of Vortexes you would not forget an humble Servant of your Ladyſhips. I eſteem it a Pleaſure, *anſwered the Counteſs*, while it diverts

diverts me with ſomething new, but no longer. I will engage for it till To-morrow, *replyed I*, for, the *fixed Stars* are beyond whatever you have yet ſeen.

The Fifth Evening's CONVERSATION.

That the fixed Stars *are ſo many* Suns, *every one of which gives Light to a* World.

THE Counteſs was very impatient to know what would become of the *fixed Stars*; are they Peopled, *ſays ſhe*, as the Planets are, or are they not inhabited at all, or in ſhort, what ſhall we do with them? You may ſoon gueſs, *ſays I*, the *fixed Stars* cannot be leſs diſtant from the Earth than Fifty Millions of Leagues; nay, if you anger an Aſtronomer,

nomer, he will ſet them farther. The Diſtance from the *Sun* to the fartheſt *Planet*, is nothing in Compariſon of the Diſtance from the *Sun*, or from the *Earth*, to the *fixed Stars*, it is almoſt beyond Arithmetick. You ſee their Light is bright and ſhining, and did they receive it from the *Sun*, it muſt needs be very weak after a Paſſage of Fifty Millions of Leagues; then judge how much it is waſted by Reflexion, for it comes back again as far to us, ſo that forwards and backwards, here are an Hundred Millions of Leagues for it to paſs, and it is impoſſible it ſhould be ſo clear and ſtrong as the Light of a fixed Star, which cannot but proceed from it ſelf; ſo that in a Word, all the *fixed Stars* are Luminous Bodies in themſelves, and ſo many *Suns*.

I perceive, *ſays the Counteſs*, where you would carry me; you are going to tell me, that if the fixed Stars are ſo many Suns, and our Sun the Center of a Vortex that turns round him, why may not every fixed Star be the Center of

of a Vortex that turns round the fixed Star? Our Sun enlightens the Planets; why may not every fixed Star have Planets to which they give Light? You have ſaid it, *replyed I*, and I will not contradict you.

But you have made the Univerſe ſo large, *ſays ſhe*, that I know not where I am, or what will become of me; what is it all to be divided into Vortexes confuſedly, one among another? Is every Star the Center of a Vortex, as big as ours? Is that vaſt Space which comprehends our Sun and Planets, but an inconſiderable Part of the Univerſe? And are there as many ſuch Spaces, as there are fixed Stars? I proteſt it is dreadful, the Idea confounds and over-powers me. And for my Part, *replyed I*, it gives me Satisfaction; when the Heavens were a little blue Arch, ſtuck with Stars, methought the Univerſe was too ſtrait and cloſe, I was almoſt ſtifled for want of Air; but now it is enlarged in Heighth and Breadth, and a Thouſand and a Thouſand Vortexes

texes taken in; I begin to breathe with more Freedom, and think the Univerſe to be incomparably more magnificent than it was before. Nature has ſpared no Coſt, even to Profuſeneſs, and nothing can be ſo glorious as to ſee ſuch a prodigious Number of Vortexes, whoſe ſeveral Centers are poſſeſſed by a particular Sun, which makes the very Planets turn round it. The Inhabitants of a Planet of one of theſe innumerable Vortexes, ſee on all ſides theſe luminous Centers of the Vortex, with which they are encompaſſed; but perhaps they do not ſee the Planets, who receiving but a faint Light from their Sun, cannot ſend it beyond their own World.

You preſent me with a Proſpect of ſo vaſt a Length, that no Eye can reach to the End of it: I plainly ſee the Inhabitants of the Earth, and you have made me diſcover thoſe who dwell in the Moon, and in other Planets of our Vortex; theſe Inhabitants indeed I conceive pretty plainly, but I do not ſee 'em ſo clearly as thoſe of the Earth:

Earth: After theſe we come to the Inhabitants of the Planets which are in the other Vortexes, but they are ſunk into ſo great a Depth, that tho' I do all I can to ſee them, yet I muſt confeſs I can hardly perceive them; by the Expreſſion you uſe in ſpeaking of them, they ſeem to be almoſt annihilated; you ought then to call them the Inhabitants of one of thoſe innumerable Vortexes: We our ſelves, for whom the ſame Expreſſion ſerves, muſt confeſs, that we ſcarce know where we are, in the Midſt of ſo many Worlds; for my own Part, I begin to ſee the Earth ſo fearfully little, that I believe from henceforth, I ſhall never be concerned at all for any Thing; that we ſo eagerly deſire to make our ſelves Great, that we are always deſigning, always troubling and hareſſing our ſelves, is certainly becauſe we are ignorant what theſe Vortexes are; but now I hope my new Lights will in part juſtifiy my Lazineſs, and when any one reproaches me with my Indolence, I will anſwer, *Ah, did*

you

you but know what the fixed Stars are! It was not fit, *ſays I*, that *Alexander* ſhould know what they were; for a certain Author who maintains that the Moon is inhabited, very gravely tells us, that *Ariſtotle* (from whom no Truth could be long concealed) muſt neceſſarily be of an Opinion, backed with ſo much Reaſon; but yet he never durſt acquaint *Alexander* with the Secret, leſt he ſhould run mad with Deſpair, when he knew there was another World which he could not conquer: With much more Reaſon then was this Myſtery of Vortexes and fixed Stars, kept ſecret in *Alexander*'s Time, for tho' they had been known in thoſe Days, yet it had been but an ill Way of making his Court to have ſaid any thing of them to that ambitious Prince; for my Part, I that know them, am not a little troubled to find my ſelf not one Jot the wiſer for all the Knowledge I have of them; the moſt they can do according to your Way of Reaſoning, is but to cure People of their Ambition,

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and their unquiet reſtleſs Humour, which are Diſeaſes I am not at all troubled with; I confeſs I am guilty of ſo much Weakneſs, as *to be in Love with what is Beautiful*; that's my Diſtemper, and I am confident the Vortexes can never cure it: what if the other Worlds render ours ſo very little? They cannot ſpoil fine Eyes, or a pretty Mouth, their Value is ſtill the ſame, in ſpite of all the Worlds that can poſſibly exiſt.

This Love, *replyed the Counteſs*, ſmiling, is a ſtrange Thing; let the World go how it will, it is never in Danger; there is no Syſtem can do it any harm. But tell me freely, is your Syſtem true? Pray conceal nothing from me; I will keep your Secret very faithfully; it ſeems to have for its Foundation, but a ſlight Probability, which is, that if a fixed Star be in it ſelf a Luminous Body, like the Sun, then by conſequence, it muſt, as the Sun is, be the Center and Soul of a World; and have its Planets turning round about it: But is there an abſolute

abſolute neceſſity it muſt be ſo? Hear me, Madam, *ſays I*, ſince we are in the humour of mingling Amorous Follies with our moſt ſerious Diſcourſe, I muſt tell you, that in Love and the Mathematicks, People reaſon alike: Allow never ſo little to a Lover, yet preſently after you muſt grant him more; nay, more and more; which will at laſt go a great way: In like manner, grant but a Mathematician one little Principle, he immediately draws a Conſequence from it, to which you muſt neceſſarily aſſent; and from this Conſequence another, till he leads you ſo far (whether you will or no) that you have much ado to believe him. Theſe two ſorts of People, Lovers and Mathematicians, will always take more then you give them. You grant, that when two things are like one another in all viſible reſpects, it is poſſible they may be like one another in thoſe Reſpects that are not viſible, if you have not ſome good Reaſon to believe otherwiſe: Now this way of arguing have I made uſe of. The Moon, *ſays I*, is inhabited,

inhabited, becauſe ſhe is like the Earth; and the other Planets are inhabited, becauſe they are like the Moon; I find the fixed Stars to be like our Sun, therefore I attribute to them what is proper to that: You are now going too far to be able to retreat, therefore you muſt go forward with a good Grace. But, *ſays the Counteſs*, if you build upon this Reſemblance, or Likeneſs, which is between our Sun and the fixed Stars, then, to the People of another great Vortex, our Sun muſt appear no bigger than a ſmall fixed Star, and can be ſeen only when it is Night with them. Without doubt, Madam, *ſays I*, it muſt be ſo: Our Sun is much nearer to us, than the Suns of other Vortexes, and therefore its Light makes a much greater Impreſſion on our Eyes than theirs do: We ſee nothing but the Light of our own Sun; and when we ſee that, it darkens and hinders us from ſeeing any other Light; but in another great Vortex, there is another Sun, which rules and governs; and, in its turn, extinguiſhes the

the Light of our Sun, which is never ſeen there but in the Night, with the reſt of the other Suns, that is, the fixed Stars; with them our Sun is faſtened to the great arched Roof of Heaven, where it makes a part of ſome *Bear* or *Bull*: For the Planets which turns round about it, (our Earth for Example) as they are not ſeen at ſo vaſt a Diſtance, ſo no Body doth ſo much as dream of them: All the Suns then are Day Suns in their own Vortexes, but Night Suns in other Vortexes: In his own World or Sphere every Sun is ſingle, and there is but one to be ſeen; but every where elſe, they ſerve only to make a Number. May not theſe Worlds, *replyed the Counteſs*, notwithſtanding this great Reſemblance between them, differ in a Thouſand other Things; for tho' they may be alike in one Particular, they may differ infinitely in Others.

It is certainly true, *ſays I*; but the Difficulty is to know wherein they differ. One Vortex has many Planets that turn round about its Sun; another Vortex

Vortex has but a few: In one Vortex, there are inferior or leſs Planets, which turn about thoſe that are greater; in another perhaps, there are no inferior Planets; here, all the Planets are got round about their Sun, in form of a little Squadron; beyond which, is a great void Space, which reaches to the Neighbouring Vortexes: In another Place, the Planets take their Courſe towards the outſide of their Vortex, and leave the middle void. There may be Vortexes alſo quite void, without any Planets at all; others may have their Sun not exactly in their Center; and that Sun may ſo move, as to carry its Planets along with it: Others may have Planets, which in regard of their Sun, aſcend, and deſcend, according to the change of their Equilibration, which keeps them ſuſpended. In ſhort, what Variety can you wiſh for? But, I think, I have ſaid enough for a Man that was never out of his own Vortex.

It is not ſo much, *replyed the Counteſs*, conſidering what a Multitude of Worlds

Worlds there are; what you have ſaid is ſufficient for five or ſix, and from hence I ſee Thouſands.

What would you ſay, Madam, if I ſhould tell you, there are many more fixed Stars than thoſe you ſee? And that an infinite Number are diſcovered with Glaſſes, which are not Perceptible to our Eye-ſight: In only one Conſtellation, where, it may be, we count twelve or fifteen, there are as many to be found as uſually appear in the whole Hemiſphere.

I ſubmit, *ſays the Counteſs*, and beg your Pardon: You quite confound me with Worlds and Vortexes. O, Madam, I have a great deal more to tell ye, *replyed I*, you ſee that whiteneſs in the Sky, which ſome call the *Milky-way*; can you imagine what That is? It is nothing but an infinity of ſmall Stars, not to be ſeen by our Eyes, becauſe they are ſo very little; and they are ſown ſo thick, one by another, that they ſeem to be one continued Whiteneſs: I wiſh you had a Glaſs, to ſee this

this *Ant-Hill* of *Stars*, and this *Cluſter* of *Worlds*, if I may ſo call them: They are in ſome ſort, like the *Maldivy* Iſlands: Thoſe twelve thouſand Banks of Sand, ſeparated only by narrow Channels of the Sea, which a Man may as eaſily leap over as a Ditch: So near together are the Vortexes of the *Milky-way*, that I preſume, the People in one World, may talk, and ſhake Hands with thoſe of another; at leaſt I believe the Birds of one World, may eaſily fly into the other; and that Pigeons may be trained up to carry Letters, as they do in the *Levant*. Theſe little Worlds are excepted out of that general Rule, by which one Sun in his own Vortex, as ſoon as he appears, effaces the Light of all other foreign Suns: If you were in one of theſe little Vortexes of the *Milky-way*, your Sun would not be much nearer to you, and conſequently, would not make any much more ſenſible Impreſſion on your Eyes, than a hundred Thouſand other Suns of the neighbouring Vortexes: You would

then ſee your Heaven ſhine bright with an infinite Number of Fires, cloſe to one another, and but a little diſtant from you; ſo that tho' you ſhould loſe the Light of your own particular Sun, yet there would ſtill remain viſible Suns enough beſide your own, to make your Night as light as Day, at leaſt, the difference would hardly be perceived; for the Truth is, you would never have any Night at all: The Inhabitants of theſe Worlds, accuſtomed to perpetual Brightneſs, would be ſtrangely aſtoniſhed, if they ſhould be told that there are a miſerable ſort of People, who, where they live, have very dark Nights, and when it is Day with them, they never ſee more than one Sun; certainly they would think Nature had very little Kindneſs for us, and would tremble with Horrour, to think what a ſad Condition we are in.

I do not ask you, *ſays the Counteſs*, whether in thoſe Worlds of the *Milky-way*, there are any Moons; I ſee they would be of no uſe to thoſe principal Planets

Planets which have no Night, and move in Spaces too ſtrait and narrow to cumber themſelves with the Baggage of inferiour Planets: Yet pray take Notice, that by your liberal Multiplication of Worlds, you have ſtarted an Objection, not eaſily anſwered: The Vortexes whoſe Suns we ſee, touch the Vortex in which we are; and if it be true, that Vortexes are round, how then can ſo many Bowls, or Globes all touch one ſingle one? I would fain imagine how this may be done, but cannot reconcile it to my ſelf.

Madam, *ſays I*, you ſhew a great deal of Wit, in raiſing this Doubt, and likewiſe in not being able to reſolve it; for in itſelf the Thing is extreme Difficult, and in the ſame manner you conceive it, no anſwer can be given to it; and he muſt be a Fool, who goes about to find Anſwers to Objections which are unanſwerable. If our Vortex had the form of a Dye, it would have ſix Squares or flat Surfaces, and would be far from being round; and upon every

one of theſe Squares, might be placed a Vortex of the ſame Figure; but if inſtead of theſe ſix Squares, it had Twenty, Fifty, or a Thouſand; then might a thouſand Vortexes be placed upon it, one upon every Flat; and, you know very well, that the more flat Faces any Body has on its outſide, the nearer it approaches to Roundneſs, juſt as a Diamond cut Face-wiſe on every ſide, if the Faces be very many and little, it will look as round as a Pearl of the ſame Bigneſs: 'Tis in this manner, that the Vortexes are round; they have an infinite Number of Faces on their outſide, and every one of 'em has upon it another Vortex; theſe Faces are not all equal and alike; but here, ſome are greater, and there, ſome leſs: The leaſt Faces of our Vortex, for Example, anſwer to the *Milky-way*, and ſuſtain all thoſe little Worlds. When two Vortexes are ſupported by the two next Flats on which they ſtand, if they leave beneath any void Space between them, as it muſt often happen, Nature, who is

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an excellent Houſewife, and ſuffers nothing to be uſeleſs, preſently fills up this void Space with a little Vortex or two, perhaps with a Thouſand, which never incommode the others, and become one, two, or a thouſand Worlds more; ſo that there may be many more Worlds than our Vortex has flat Surfaces to bear 'em: I will lay a good Wager, that tho' theſe little Worlds were made only to be thrown into the Corners of the Univerſe, which otherwiſe would have been void and uſeleſs; and tho' they are unknown to other Worlds which they touch, yet they are well ſatisfied with their being what they are: Theſe are the little Worlds, whoſe Suns are not to be diſcovered but with a Teleſcope, and whoſe Number is prodigious: To conclude, all theſe Vortexes are joined to one another in ſo admirable a manner, that every one turns round about his Sun, without changing Place; every one has ſuch a turn as is moſt eaſy, and agreeable to its own Situation: They take hold of one ano-

ther, like the Wheels of a Watch, and mutually help one another's Motion: And yet 'tis true, that they act contrary to one another. Every World, as ſome ſay, is like a Foot-Ball, made of a Bladder, covered with Leather, which ſometimes ſwells of its own accord, and would extend it ſelf, if it were not hindred. But this ſwelling World being preſſed by the next to it, returns to its firſt Figure; then ſwells again, and is again depreſſed; and ſome affirm, that the Reaſon why the fixed Stars give a twinkling and trembling Light, and ſometimes ſeem not to ſhine at all, is becauſe their Vortexes perpetually puſh and preſs our Vortex, and ours again continually repulſes theirs.

I am in love with theſe Fancies, *ſays the Counteſs*; I am pleaſed with theſe Foot-Balls, which ſwell every Moment, and ſink again, and with theſe Worlds, which are continually ſtriving and puſhing one another: But above all, I am pleaſed to ſee how this joſtling keeps up the Trade of Light, which is certainly

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the only Correſpondence that is between them.

No, no, Madam, *ſays I*; Light is not their ſole Commerce; the neighbouring Worlds ſometimes pay viſits to us, and that in a very magnificent and ſplendid manner: Comets arrive from thence, adorned with bright ſhining Hair, Venerable Beards, and Majeſtick Tails; theſe, *ſays the Counteſs*, are Embaſſadors, whoſe viſits may be well ſpared, ſince they ſerve only to fright us. They ſcare only Children, *ſays I*, with their extraordinary Train; but indeed, the Number of ſuch Children is now a-days very great. Comets are nothing but Planets, which belong to a Neighbouring Vortex, they move towards the out-ſide of it; but perhaps this Vortex being differently preſſed by thoſe Vortexes which encompaſs it above, it is rounder than below, and the lower Part is ſtill towards us. Theſe Planets which have begun to move in a Circle above, are not aware, that below their Vortex will fail them, becauſe it is

as it were broken. Therefore, to continue the circular Motion, it is neceſſary that they enter into another Vortex, which we will ſuppoſe is ours, and that they cut through the outſides of it. They appear to us very high, and are much higher than *Saturn*; and according to our Syſtem, it is abſolutely neceſſary they ſhould be ſo high, for Reaſons that ſignify nothing to our preſent Subject. From *Saturn* downwards to the other ſide of our Vortex, there is a great void Space without any Planets. Our Adverſaries often ask us, to what purpoſe this void Space ſerves? But let them not trouble themſelves any more, I have found a uſe for it. It is the Apartment of thoſe ſtrange Planets, which come into our World.

I underſtand you, *ſays ſhe*, we do not ſuffer them to come into the Heart of our Vortex, among our own Planets, but we receive them as the *Grand Seignior* does the Embaſſadours that are ſent to him; he will not ſhew them ſo much Reſpect as to let them reſide within the

Walls

Walls of *Conſtantinople*, but Quarters them in one of the Suburbs of the City: Madam, *ſays I*, we, and the *Ottomans* agree likewiſe in this, that as they receive Embaſſadours, but never ſend any, ſo we never ſend any of our Planets into the Worlds that are next us.

But this, *ſays ſhe*, it appears that we are very proud; however, I do not yet very well know what I am to believe. Theſe foreign Planets with their Tails and their Beards have a terrible Countenance, it may be they are ſent to affront us; but ours that are of another Make, if they ſhould get into other Worlds, are not ſo proper to make People afraid.

Their Beards and their Tails, Madam, *ſays I*, are not real, they are *Phænomena*, and but mere Appearances. Theſe foreign Planets differ in nothing from ours; but entring into our Vortex, they ſeem to us to have Tails or Beards, by a certain ſort of Illumination which they receive from the Sun, and which has not been yet well explained. But

'tis certain, that is but a kind of Illumination, and when I am able I will tell you how 'tis done. I wiſh then, *ſays ſhe*, that our *Saturn* would go take a Tail and a Beard in another Vortex, and fright all the Inhabitants of it. That done, I would have him come back again, leaving his terrible Accoutrements behind him, and taking his uſual Place amongſt our other Planets, fall to his ordinary Buſineſs. 'Tis better for him, *ſays I*, not to go out of our Vortex. I have told you how rude and violent the Shock is, when two Vortexes joſtle one another, a poor Planet muſt needs be terribly ſhaken, and its Inhabitants in no better Condition. We think our ſelves very unhappy when a Comet appears, but it is the Comet that is in an ill Caſe. I do not believe that, *ſays ſhe*, it brings all its Inhabitants with it in very good Health; there can be nothing ſo diverting as to change Vortexes. We that never go out of our own Sphere lead but a dull Life; if the Inhabitants of a Comet had but

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the Wit to foreſee the Time when they are to come into our World, they who had already made the Voyage, could tell their Neighbours beforehand what they would ſee, they could tell them, that they would diſcover a Planet with a great Ring about it, meaning our *Saturn*; they would alſo ſay, you ſhall ſee another Planet which has four little ones to wait on it; and perhaps ſome of them, reſolved to obſerve the very Moment of their entring into our World, would preſently cry out, *A new Sun, a new Sun*, as Sailors uſe to cry, *Land, Land.*

You have no reaſon then, *ſays I*, to pity the Inhabitants of a Comet, yet I ſuppoſe you will think their Condition lamentable, that inhabit a Vortex whoſe Sun comes in Time to be quite extinguiſhed, and conſequently who live in Eternal Night. How, *cried the Counteſs*, can Suns be extinguiſhed? Yes, without doubt, *ſays I*, for People ſome thouſand Years ago ſaw fixed Stars in the Sky, which are now no more to be

ſeen; theſe were Suns which have loſt their Light, and certainly there muſt be a ſtrange Deſolation in their Vortexes, and a general Mortality over all the Planets, for what can People do without a Sun? This is a diſmal Fancy, *ſays the Counteſs*, I would not, if I could help it, let it come into my Head, I will tell you, if you pleaſe, *replyed I*, what is the Opinion of Learned Aſtronomers as to this Particular: They think that the fixed Stars which have diſappeared, are not quite extinguiſhed, but that they are half Suns, that is, they have one half Dark, and the other half Light, and turning round upon their own Axis or Center, they ſometimes ſhew us their Light ſide, and afterwards turning to us their Dark ſide, we ſee them no more. To oblige you, Madam, I will be of this Opinion, becauſe it is not ſo harſh as the other, tho' I cannot make it good but in relation to ſome certain Stars, becauſe as ſome have lately obſerved, thoſe Stars have their regulated times of appearing, and diſappearing, otherwiſe

wiſe there could be no ſuch things as half Suns. But what ſhall we ſay of Stars, which totally diſappear, and never ſhew themſelves again after they have finiſhed their Courſe of turning round upon their own Axis? You are too juſt, Madam, to oblige me to believe that Stars are half Suns. However, I will try once more what I can do in favour of your Opinion: The Suns are not extinct, they are only ſunk ſo low into the immenſe depth of Heaven, that we cannot poſſibly ſee them; in this Caſe, the Vortex follows his Sun, and all is well again. It is true that the greateſt Part of the fixed Stars have not this Motion, by which they remove themſelves ſo far from us, becauſe at other times they might return again nearer to us, and we ſhould ſee them ſometimes greater, and ſometimes leſs, which never happens. But we will ſuppoſe that none but the little Light, and moſt active Vortexes which ſlip between the others, make certain Voyages, after which they return again

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while the main Body of Vortexes remain unmoved. It is likewiſe very ſtrange that ſome fixed Stars ſhew themſelves to us, ſpending a great deal of time in appearing, and diſappearing, and at laſt, totally and entirely diſappear. Half Suns would appear again at their ſet and regulated Time. But Suns, which ſhould be ſunk low into the depths of Heaven, would diſappear but once, and not appear again for a vaſt ſpace of Time. Now, Madam, declare your Opinion boldly: Muſt not theſe Stars, of neceſſity be Suns, which are ſo much darkned, as not to be viſible to us, yet afterwards ſhine again, and at laſt are wholly extinct? How can a Sun, *ſays the Counteſs*, be darkned and quite extinguiſhed, when it is in its own Nature a Foundation of Light? It may be done, Madam, *ſays I*, with all the Eaſe in the World, if *Diſcartes*'s Opinion be true, that our Sun has Spots; now whether theſe Spots be Scum or thick Miſts, or what you pleaſe, they may thicken and unite, till at laſt they cover

cover the Sun with a Cruſt, which daily grows thicker, and then farewel Sun. We have hitherto ſcaped pretty well; but it is ſaid, that the Sun for ſome whole Years together has looked very pale; for Example, the Year after *Cæſar*'s Death; it was this Cruſt that then began to grow, but the Force of the Sun broke through, and diſſipated it; had it continued, we had been all loſt People. You make me tremble, *replyed the Counteſs*, and now I know the fatal Conſequences of the Sun's Paleneſs, I believe inſtead of going every Morning to the Glaſs, to ſee how I look my ſelf, I ſhall caſt my Eyes up to Heaven, to ſee whether or no the Sun looks pale. Oh, Madam, *ſays I*, there is a great deal of Time required to ruin a World. I grant it, *ſays ſhe*, yet it is but Time that is required. I confeſs it, *ſays I*, all this immenſe Maſs of Matter that compoſes the Univerſe, is in perpetual Motion, no Part of it excepted; and ſince every Part is moved, you may be ſure that Changes muſt happen

happen ſooner or later; but ſtill in times proportioned to the Effect. The Ancients were pleaſant Gentlemen, to imagine that the *Celeſtial Bodies* wherein their own Nature unchangeable, becauſe they obſerve no Alteration in them; but they did not live long enough to confirm their Opinion by their own Experience; they were Boys in compariſon of us. Give me leave, Madam, to explain my ſelf by an Allegory: If Roſes, which laſt but a Day, could write Hiſtories, and leave Memoirs one to another, and if the firſt Roſe ſhould draw an exact Picture of his Gardiner, and after fifteen Thouſand Roſe-Ages, it ſhould be left to other Roſes, and ſo on ſtill to thoſe that ſhould ſucceed, without any change in it; ſhould the Roſes hereupon ſay, we have every Day ſeen the ſame Gardiner, and in the Memory of Roſes, none ever ſaw any Gardiner but this; he is ſtill the ſame he was, and therefore certainly he will die, as we do, for there is no Change at all in him. Would not theſe Roſes,

Madam,

Madam, talk very fooliſhly? And yet there would be more reaſon in their Diſcourſe, than there was in what the Ancients ſaid concerning *Celeſtial Bodies*; and though even to this very Day there ſhould appear no viſible Change in the Heavens, and the Matter, of which they are made, ſhould have all the Signs of an Eternal Duration, without any Change; yet I would not believe them unchangeable, till I had the Experience of many more Ages. Ought we, whoſe Lives are but *a Span long* to make our Continuance the menſurate Duration of any other Being? It is not ſo eaſy a matter to be Eternal, To have laſted many Ages of Men, one after another, Is no Sign of Immortality. Truly, *ſays the Counteſs*, I find theſe Worlds are far from being able to pretend to it; I will not do them ſo much Honour, as to compare them to the Gardiner that lived ſo much longer than the Roſes: I begin to think them like the Roſes themſelves, which blow one Day, and die the next: For now I underſtand,

ſtand, that if old Stars diſappear, new ones will come in their Room, becauſe every Species muſt preſerve it ſelf. No Species, Madam, *ſays I*, can totally periſh; ſome perhaps will tell you that ſuch new Stars are Suns, which return to our Sight again, after they have been a long Time hid from us, in the Profundity of Heaven: Others may tell you they are Suns cleared from that thick Cruſt, which once covered them: If I ſhould think all this poſſible, yet I likewiſe believe that the Univerſe may be framed in ſuch a Manner, that from time to time it may produce new Suns; why may not that Matter which is proper to make a Sun, be diſperſed here and there, and gather it ſelf again at long run, into one certain Place, and lay the Foundation of a New World? I am very much inclined to believe ſuch new Productions, becauſe they ſuit with that Glorious and Admirable Idea which I have of the Works of Nature. Can we think that wiſe Nature knows no more than the Secret of making Herbs

Herbs and Plants live and die by a continual Revolution? I am verily perſuaded, and are not you ſo too, Madam, that Nature, without much Coſt or Pains, can put the ſame Secret in Practice upon the Worlds? I now find, *ſays the Counteſs*, the Worlds, the Heavens, and celeſtial Bodies ſo ſubject to change, that I am come to my ſelf again. To recover our ſelves the better, *replyed I*, let us ſay no more of theſe Matters. We are arrived at the very Roof and Top of all the Heavens; and to tell you whether there be any Stars beyond it, you muſt have an abler Aſtronomer than I am; you may place Worlds there, or no Worlds, as you pleaſe: It is the Philoſopher's Empire to deſcribe thoſe vaſt inviſible Countries, which are, and are not, or are ſuch as he pleaſes to make them: It is enough for me to have carried your *Mind*, as far as you can ſee with your Eyes.

Well now, *ſays the Counteſs*, I have the *Syſtem* of the *Univerſe* in my Head; How learned am I become? Indeed, Madam,

Madam, *ſays I*, you are pretty knowing, and with this Advantage, either of believing or disbelieving any thing I have ſaid; all the Recompence I deſire for the Pains I have taken, is, that you would never look upon the *Sun*, the *Heaven*, or the *Stars*, without thinking on *Me*.

The Sixth Evening's CONVERSATION.

Some New Obſervations *which confirm thoſe in the preceding* Converſations; *and, ſeveral* late Diſcoveries *which have been made in the* Heavens.

IT was a conſiderable Time ſince the Counteſs and I had any Talk of the *Planetary Worlds*; and it was ſo long indeed, that we began to forget we ever had held any Arguments on that Subject.

Subject. When I went one Day to Viſit her, I came in juſt as two Gentlemen of Wit and Character in the World had taken their leaves of her. Well! *ſays ſhe*, the very Moment ſhe perceived me, you ſee who have honoured me with a Viſit; and, I proteſt, it has given me ſome room to ſuſpect that it has been in your Power to impoſe upon my Judgment. I ſhould be very proud, Madam, *replyed I*, if I could flatter my ſelf with ſuch a Power, becauſe I look upon it to be the hardeſt Task any one could attempt. As hard as it is, *ſays the Counteſs*, I am afraid you have done it. I do not know how it came about, but our Converſation turned upon the *Plurality of Worlds* with my two Friends who are juſt gone: I am not certain, but they might introduce the Diſcourſe with a malicious Deſign. I made no ſcruple to tell them directly, that all the Planets were Inhabited; one of them replyed, he was very well ſatisfied I did not believe a Word of it, and I with all the Simplicity imaginable maintained,

mantained, that it was my real Opinion; he ſtill looked upon it as a Piece of Diſſimulation deſigned to divert the Company: And I thought what made him ſo poſitive that I did not believe my own Sentiments was, that he had too high an Opinion of me to conceive that I could entertain ſo extravagant a Notion. As for the other Gentlemen, who had not altogether that Eſteem for me, they took me at my Word. For God's ſake, why did you put a Thing in my Head, which People that value me cannot think I maintain ſeriouſly? Nay, Madam, *ſays I*, but why would you maintain it ſeriouſly among a ſet of People, who, I am ſure, never entered into a way of Reaſoning which had the leaſt caſt of Seriouſneſs? Muſt we intruſt the Inhabitants of the Planets ſo highly? We ſhould content our ſelves with being a little ſelect Number of *Advocates* for them, and not communicate our *Myſteries* to the *Vulgar*. How! *ſays the Counteſs*, do you call my two laſt Viſitants the *Vulgar?* They

They may have Wit enough, *ſays I*, but they never Reaſon at all. And your Reaſoners, who are a ſevere ſet of People, will make no Difficulty of ſorting them with the Vulgar. On the other Side, theſe Men of Fire revenge themſelves by ridiculing the Reaſoners; and think it is a very juſt Principle in Nature, that every Species deſpiſes what it wants. It were right, if it was poſſible, to conform our ſelves to every Species; and it had been much better for you to have rallied on the Inhabitants of the Planets with your two Friends, becauſe they are better Raillery than Reaſoning, which they never make Uſe of: You had then come off with their joint Eſteem; and the Planets had not loſt a ſingle Inhabitant by it. Would you have had me ſacrifice the Truth to a Jeſt! *replyed the Counteſs:* And is that all the Conſcience you have? I own to you, *ſays I*, that I have no great Zeal for theſe ſorts of Truths, and I will ſacrifice them with all my Soul to the laſt Conveniencies of Com-

Company. For Inſtance, I ſee what is, and always will be, the Reaſon, why the Opinion of the Planets being Inhabited, is not received ſo probable as it really is: The Planets always preſent themſelves to our View as Bodies which emit Light; and not at all like great Plains and Meadows. We ſhould readily agree that Plains and Meadows were Inhabited; but for Luminous Bodies to be ſo too, there is no Ground to believe it. Reaſon may come and tell us over and over, that there are Plains and Meadows in theſe Planets, but Reaſon comes a Day too late; one Glance of our Eyes has had its Effect before her, we will not hear a Word ſhe ſays, the Planets muſt be Luminous Bodies, and what ſort of Inhabitants ſhould they have? Our Imagination of Courſe would preſently repreſent their Figures to us, it is what ſhe cannot do, and the ſhorteſt Way is to believe there are no ſuch Beings. Would you have me for the Eſtabliſhment of theſe Planetary People, whoſe Intereſts are far from touching

touching me, go to attack thoſe formidable Powers, called Senſes and Imagination? It is an Enterprize would require a good Stock of Courage, and we cannot eaſily prevail on Men, to ſubſtitute their Reaſon in the Place of their Eyes. I ſometimes meet with reaſonable People enough, who are willing, after a thouſand Demonſtrations, to believe that the Planets are ſo many Earths: But their Belief is not ſuch as it would be, if they had not ſeen them under a different Appearance; they ſtill remember the firſt Idea they entertained, and they cannot well recover themſelves from it. It is theſe ſort of People, who, in believing our Opinion, ſeem to do it a Courteſy, and only favour it for the Sake of a certain Pleaſure which its Singularity gives them.

Well, *ſays the Counteſs*, interrupting me, and is not this enough for an Opinion, which is but barely probable? You would be very much ſurprized, *ſays I*, if I ſhould tell you, *probable* is

a very modeſt Term. Is it ſimply probable that ſuch a one as *Alexander* ever was? You hold it very certain that there was, and upon what is this Certainty founded? Becauſe you have all the Proofs which you could deſire in a like Matter, and there does not the leaſt Subject for Doubt preſent it ſelf, to ſuſpend or arreſt your Determination; for elſe you never could ſee this *Alexander*, and you have not one *Mathematical* Demonſtration that there ever was ſuch a Man. Now what would you ſay if the Inhabitants of the Planets were almoſt in the very ſame Caſe? We cannot pretend to make you ſee them, and you cannot inſiſt upon the Demonſtration here, as you would in a *Mathematical* Queſtion; but you have all the Proofs you could deſire in a like Matter: The entire Reſemblance of the *Planets* with the *Earth* which is inhabited, the Impoſſibility of conceiving any other Uſe for which they were created, the Fecundity, and Magnificence of Nature, the certain Regards

gards ſhe ſeems to have had to the Neceſſities of their Inhabitants, as in giving *Moons* to thoſe *Planets* remote from the *Sun*, and more *Moons* ſtill to thoſe yet more remote; and what is ſtill very material, there are all things to be ſaid on this ſide, and nothing on the other; and you cannot comprehend the leaſt Subject for a Doubt, unleſs you will take the Eyes and Underſtanding of the *Vulgar*. In ſhort, ſuppoſing that theſe Inhabitants of the Planets really exiſt, they could not declare themſelves by more Marks, or Marks more ſenſible; and after this you are to conſider whether you are willing not to take their Caſe to be more than purely probable. But you would not have me, *replies the Counteſs*, look upon this to be as certain as that there was ſuch a Man as *Alexander*? Not altogether, Madam, *ſays I*, for tho' we have as many Proofs touching the Inhabitants of the Planets, as we can have in the Situation we are, yet the Number of theſe Proofs is not great. I muſt re-

nounce theſe Planetary Inhabitants *ſaid her Ladyſhip*, interrupting me, for I can't conceive how to rank them in my Imagination; there is no abſolute Certainty of them, and yet there is more than a Probability; ſo that I am confounded in my Notions. Ah, Madam, *ſays I*, never put your ſelf out of conceit with them for that; the moſt common and ordinary Clocks ſhew the Hours, but thoſe are wrought with more Art and Nicety which ſhew the Minutes. Juſt ſo your ordinary Capacities are ſenſible of the Difference betwixt a ſimple Probability, and a compleat Certainty; but it is only your fine Spirits that diſcern the exact Proportions of Certainty or Probability, and can mark, if I may uſe the Phraſe, the Minutes in their Sentiments. Now place the Inhabitants of the Planets a little below *Alexander*; but above, I can't tell how many Points of Hiſtory which are not ſo clearly proved: I believe this Poſition will do well. I love Order, *ſays the Countess*, and you oblige me in ranging my

my Ideas for me: But pray, why did not you take this Care before? Becauſe, *ſays I*, ſhould you believe the Inhabitants of the Planets either a little more or leſs than they deſerve, there will be no great Damage in it. I am ſure that you do not believe the Motion of the Earth ſo fully as it ought to be believed; and have you much Reaſon to complain on that Score? O! For that matter, *replies ſhe*, I have diſcharged my ſelf well, you have nothing to reproach me with on that Account, for I firmly believe that the Earth turns. And yet, *ſays I*, Madam, I have not given you the ſtrongeſt Reaſons in proving it. Ah! Traytor, *replies the Counteſs*, to make me believe things upon feeble Proofs: Then you did not think me worthy of believing upon ſubſtantial Reaſons? I only proved things, *ſays I*, upon little plauſible Reaſons, and ſuch as were adapted to your peculiar Uſe: Should I have conjured up as ſtrong and ſolid Arguments, as if I had been to attack a Doctor in the Science? Yes;

ſays the Counteſs, pray take me for a Doctor from this Moment, and let me have your additional Demonſtrations of the Earth's moving.

With all my Heart, *ſays I*, Madam, and I own the Proof pleaſes me ſtrangely, perhaps becauſe I think it was of my own finding; yet it is ſo good and natural, that I muſt not preſume poſitively to have been the Inventor of it: It is moſt certain, that if a learned Man was puzled, and deſired to make Replications to it, he would be obliged to hold forth at large, which is the only Method in the World to confound a learned Man. We muſt grant, that all the *Celeſtial Bodies*, in four and twenty Hours, turn round the Earth, or that the Earth turning on it ſelf, imparts this Motion to all the Celeſtial Bodies. But that they really have this Revolution in four and twenty Hours round the Earth, is a Matter which has the leaſt Appearance in the World, tho' the Abſurdity does not preſently appear to our View. All the Planets certainly

ly make their great Revolution about the Sun; but theſe Revolutions of theirs are unequal according to the Diſtances of the reſpective Planets from the Sun; for the moſt remote ones make their Courſe in a larger Time, which is moſt agreeable to Nature: The ſame Order is obſerved among the little ſecondary Planets in turning about a great one. The four Moons of *Jupiter*, and the five of *Saturn*, make their Circles in more or leſs Time round their great Planet, according as they are more or leſs remote. Beſides, it is certain that the Planets have Motions upon their own Centers, and theſe Motions likewiſe are unequal; we cannot well tell how to account for this Inequality, whether it proceeds from the different Magnitudes of the Planets, or on the different Swiftneſs of the particular Vortexes which incloſe them, and the liquid Matters in which they are ſuſtained; but, in ſhort, the Inequality is moſt undoubted; and ſuch is the Order of Nature in general, that whatever is

common to many things, is found at the ſame Time to vary in ſome different Particulars.

I underſtand you, *ſays the Counteſs*, interrupting me, and, I think, there's a great deal of Reaſon in what you ſay; I am entirely of your Mind, if the Planets turned about the Earth, they would do it in unequal Spaces of Time, according to their Diſtances, as they do about the Sun: Is not that the Meaning of what you were ſaying? Exactly, Madam, *ſays I*, their unequal Diſtances, with reſpect to the Earth, their different Magnitudes, and the different Rapidity of the particular Vortexes incloſing them, ſhould conſequently produce Differences in their pretended Motion round the Earth, as well as in all their other Motions. And the fixed Stars which are at ſuch a prodigious Diſtance from us, and ſo much elevated above every thing that can take a general Motion round us, at leaſt which are ſituated in a Place whence this Motion ſhould be very much weakned, would

would there not be a very great Appearance that they did not turn at all about us in four and twenty Hours, as the Moon does who is ſo near us? And ſhould not Comets, which are Strangers in our Vortex, and which run Courſes ſo differing one from another, and with ſuch unequal Rapidity, be excuſed from turning round us in the ſame Space of four and twenty Hours? But no Matter, fixed Stars, and Comets, and all muſt turn round the Earth in four and twenty Hours; yet, if there were ſome Minutes of Difference in theſe Motions, we might be contented; and they all muſt make them with the moſt exact Equality, or rather the only exact Equality which is in the World, and not one Minute more or leſs allowed. In Reality, this Matter is ſtrangely to be ſuſpected.

O! *ſays the Counteſs*, ſince 'tis poſſible that this grand Equality ſhould be only in our Imagination, I'm entirely convinc'd it is deriv'd only from thence: I'm very well pleaſed, that any which is againſt the Genius of Nature, ſhould

fall entirely upon our ſelves, and that ſhe ſhould ſtand diſcharged, tho' at our Expence. For my part, *ſays I*, I am ſuch a Foe to a perfect Equality, that I cannot even allow, that, all the Turns which the Earth every Day makes on her ſelf, ſhould be preciſely in four and twenty Hours, and always equal one to another; I ſhould be very much inclined to think that there are Variations. Variations! *cried the Counteſs*, why, do not our Pendulums mark an entire Equality? O, *ſays I*, to your Pendulums I muſt object, for they cannot be altogether juſt; and ſometimes when they are, in ſhewing us that one Circuit of twenty-four Hours, is longer or ſhorter than another, we ſhould rather be inclined to believe them irregular, than to ſuſpect the Earth of any Irregularity in her Revolutions. What a pleaſant Reſpect is this we have for her, I would no more depend on the Earth than on a Pendulum! And the very ſame Caſualties almoſt which will diſorder the one, will make the other irregular! Only, I believe,

believe, there muſt be ſome more Time allowed for the Earth, than a Pendulum, to be viſibly put out of Order; and that is all the Advantage we can give on her ſide. But might ſhe not by Degrees draw nearer to the Sun? And there finding her ſelf in a Situation, where the Matter is more agitated, and the Motion more rapid, ſhe will in leſs Time make her double Revolution both about the Sun and her ſelf; ſo conſequently her Years and Days will be much ſhortned, but not to be perceiv'd, becauſe we muſt ſtill go on to divide the Years into three hundred and ſixty five Days, and the Days into twenty four Hours: So that without living longer than we now do, we ſhall live more Years; and on the other Hand, as the Earth ſhall withdraw from the Sun, we ſhall live fewer Years than we do now, and yet have our Lives of the ſame Extent. There is a great deal of Probability, *ſays the Counteſs*, that whenever it falls out ſo, long Succeſſions of Ages will make but very little

Variation. I agree with you, Madam, *replyed I*, the Conduct of Nature is very nice, and ſhe has a Method of bringing about all Things by Degrees, which are not ſenſible, but in very obvious and eaſy Changes: We are ſcarce able to perceive the Change of the Seaſons, and for ſome others which are made with a certain Deliberation, they do not fail to eſcape our Obſervance. However, all is in a perpetual Rotation, and not ſo much as the Lady's Face in the Moon, which was diſcovered with Teleſcopes, within this twenty Years, but what is grown conſiderably old. She had a good tolerable Countenance, but now her Cheeks are ſunk, her Noſe grown long, and her Chin and Forehead meet, ſo that all Graces are vaniſhed, and Age has made her a terrible Spectacle.

What a Story do you tell, *ſays the Counteſs*, interrupting me? It is no Impoſition, Madam, *replyed I*, they have p..rceived in the Moon a particular Figure which had the Air of a Woman's Head jetting out of Rocks, and it

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is owing to ſome Changes that have happened there. Some Pieces of Mountains have mouldered away, and left us to diſcover three Points, which can only ſerve to make up the Forehead, Noſe, and Chin, of an old Woman. Well, *ſays ſhe*, but do not you think it is ſome Deſtiny that had a particular Spite to Beauty? And very juſtly it was this Female-Head, which ſhe would attack above all the Moon. Perhaps in Recompence, *replied I*, the Changes which happen upon our Earth, dreſs out ſome Face, which the People in the Moon ſee; I mean ſomething like what we conceive a Face in the Moon; for every one beſtows on Objects thoſe Ideas of which they themſelves are full. Our Aſtronomers ſee on the Surface of the Moon, the Faces of Women, and may be, if the Ladies were to make their Speculations, they would diſcern the Phyſiognomy of fine Men. For my part, Madam, I don't know whether I ſhould not fancy your Ladyſhip's Charms there. I proteſt, *ſays ſhe*, I can't help being obliged

liged to any One who ſhould find me there. But to come back to what you were mentioning juſt now: Do any conſiderable Changes affect the Earth? In all Appearance they do, *replied I:* Old Fables tell us, that *Hercules* ſplit aſunder with his Hands, the two Mountains, called *Calpe* and *Abila*, which ſtand betwixt *Africk* and *Spain*, ſtopped the Ocean from flowing there, and that immediately the Sea ruſhed with Violence over the Land, and made that great Gulph which we call the *Mediterranean*. Now this is not wholly fabulous, but a Hiſtory of thoſe remote Times, which has been diſguized, either from the *Ignorance* of the *People*, or through the *Love* they had for the *Marvellous*, the two moſt antient Frailties of Mankind. That *Hercules* ſhould ſeparate two Mountains with his two Hands, is abſolutely incredible; but that in the time of one *Hercules*, or other, for there were Fifty of that Name, the Ocean ſhould force down two Mountains, not ſo ſtrong as others in the World, perhaps

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thro' the Aſſiſtance of ſome Earthquake, and ſo take his Courſe betwixt *Europe* and *Africk*, gives me no manner of Pain to believe. What a notable Spot might the *Lunar-Inhabitants* all on a ſudden diſcover on our Earth; for you know, Madam, that Seas are Spots. It is no leſs the common Opinion, that *Sicily* was ſeparated from *Italy*, and *Cyprus* from *Syria:* There are ſometimes new Iſlands formed in the Seas: Earthquakes have ſwallowed up Mountains, others have roſe and altered the Courſe of the Planets. The Philoſophers give us Apprehenſions, that the Kingdoms of *Naples* and *Sicily*, which are Countries laid upon great ſubterranean Vaults, full of Sulphur, will one day ſink in, when thoſe Vaults ſhall no longer be able to reſiſt the Flames which they contain, and at this time exhale at thoſe Vent-holes the Mouths of *Veſuvius* and *Ætna*. Is not here enough to diverſify the Sight which we give to the People in the Moon?

I had

I had much rather, *ſays the Counteſs*, that we diſguſted them with the ſame Object always, than diverted them with the ſwallowing up of Provinces.

I do not know, *replyed I*, if within this little time there have not been ſeveral burnt up in *Jupiter*. What, Provinces burnt up in *Jupiter! cries the Counteſs*, upon my Word, that would be conſiderable News. Very conſiderable, *ſays I*, Madam: We have remarked this Year in *Jupiter* a long Trail of Light, more glaring than the reſt of that Planet's Body. We have, here, had Deluges, perhaps they may have ſuffered great Conflagrations in *Jupiter*: How do we know to the contrary? *Jupiter* is Ninety Times bigger than the Earth, and turns on his one Center in Ten Hours, whereas we do not turn in leſs than four and twenty, which implies that his Motion is two hundred and ſixteen times ſtronger than ours. May it not be poſſible, that in ſo rapid a Circulation, its moſt dry and combuſtible Parts ſhould take fire as we ſee

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the Axle-trees in Wheels, from the Rapidity of their Motion, will break out into Flames? But however it is, this Light of *Jupiter* is by no means comparable to another, which in all Probability is as Ancient as the World, and yet we have never ſeen it. How does a Light order it to be concealed, *ſays the Counteſs*? There muſt be ſome ſingular Addreſs to compaſs that Point.

This Light, *replyed I*, never appears but at Twilight, which is often ſtrong enough to drown it; and even when Twilight ſuffers it to appear, either the Vapours of the Horizon rob us of it, or it is ſo very faint and hard to be perceived, that for want of Exactneſs in our Knowledge, we miſtake it for the Twilight. But, in ſhort, they have of late Years with much Certainty diſtinguiſhed it; and it has been for ſome Time the Delight of the Aſtronomers, whoſe Curioſity wanted to be rouſed by ſome Novelty, and they could not well have been more touched, if they had diſcovered ſome new ſecondary

nary Planets. The two latter Moons of *Saturn*, for Inſtance, did not raviſh them to that Degree which the Guards or Moons of *Jupiter* did: But now we are fully accuſtomed to it; we ſee, one Month before, and after, the Vernal Equinoctial, when the Sun is ſet and the Twilight over, a certain whitiſh Light reſembling the Tail of a Comet. We ſee the ſame before Sun riſe, and before the Twilight, towards the Autumnal Equinoctial; and towards the Winter Soliſtice we ſee it Night and Morning, except at theſe Times it cannot, as I but now obſerved, diſengage it ſelf from the Twilights, which are too ſtrong and laſting; for we ſuppoſe it to be a continued Light, and in all Probability it is ſo. We have begun to conjecture that it is produced from ſome prodigious Quantity of Matter crowded together, which circles round the Sun to a certain Extent: The greateſt Part of his Rays pierce thro' this groſs Circuit, and come down to us in a right Line; but ſome reſting on the inner Surface of this

this Matter, are from thence reflected to us, and come with the direct Rays, or elſe we cannot have them either Morning or Evening. Now as theſe reflected Rays are ſhot from a greater Height than thoſe which are direct, we muſt conſequently have them ſooner, and keep them longer.

On this foot, I muſt acquieſce in what I have already mentioned, that the *Moon* muſt have no Twilight for want of being ſurrounded by ſuch a groſs Air as the *Earth*. But ſhe can be no loſer; her Twilights will proceed from that kind of groſs Air which ſurrounds the *Sun*, and reflects his Rays on Places which his direct ones cannot reach. But pray let me know, *ſays the Counteſs*, are not there Twilights ſettled for all the Planets, who will not need every one to be cloathed with a diſtinct groſs Air, becauſe that which ſurrounds the Sun alone, may have one general Effect for all the Planets in the Vortex? I am mighty willing to think that Nature, agreeable to that Inclination

tion which I know ſhe has to Oeconomy, and good Management, ſhould make that ſingle Means anſwer her purpoſe: Yet, *replied I*, notwithſtanding that ſuppoſed Oeconomy, ſhe muſt have, with reſpect to our Earth, two Cauſes for Twilight; one whereof, which is the thick Air about the Sun, will be pretty uſeleſs, and can only be an Object of Curioſity for the Students of the Royal Academy: But not to conceal any thing, it is poſſible that only the Earth ſends out from her ſelf Vapours and Exhalations groſs enough to produce Twilights, and that Nature had Reaſon to provide by one general Means for the Neceſſities of all the other Planets, which are, if I may ſo ſay, of a purer Mould, and their Evaporations conſequently more ſubtle. We are perhaps thoſe among all the Inhabitants of the Worlds in our Vortex, who required to have a more groſs and thick Air given us to breathe in. With what Contempt would the Inhabitants of the other Planets conſider us, if they knew this? They

They would be out in their Reaſoning, *ſays the Counteſs*, we are not to be deſpiſed for being enveloped with a thick Air, ſince the Sun himſelf is ſo ſurrounded. Pray tell me, is not this Air produced by certain Vapours, which you have formerly told me iſſued from the Sun, and does it not ſerve to break the firſt force of his Rays. which had elſe probably been to Exceſs? I conceive that the Sun may be veiled by Nature, to be more proportioned to our uſe. Well, Madam, *replyed I*, this is ſome ſmall *Introduction* to a *Syſtem* which you have ſtarted very happily. We may add, that theſe Vapours may produce a kind of Rain, which falling back upon the Sun may cool and refreſh it, as we ſometimes throw Water into a Forge, when the Fire is too fierce. There is nothing which we may not preſume, to help out Nature's Addreſs, but ſhe has another kind of Addreſs very particular, which is to conceal her ſelf from us, and we ſhould not willingly be confident that we have found out her Method of acting

ing on her Deſigns in it: In caſe of New Diſcoveries, we ſhould not be too importunate in our Reaſonings, tho' we are always fond enough to do it; and your true Philoſophers are like Elephants, who as they go, never put their ſecond Foot to the Ground, till their firſt be well fixed. The Compariſon ſeems the more juſt to me, *ſays ſhe*, as the Merit of thoſe two Species of Animals, Elephants and Philoſophers, does not at all conſiſt in Exterior Agreements. I am willing to miſtake the Judgment of both; now teach me ſome of the latter Diſcoveries, and I promiſe you not to make any raſh Syſtems.

I'll tell you, Madam, *replyed I*, all the News I know from the Firmament, and I believe the freſheſt Advices you can have. I am ſorry they are not as ſurprizing and wonderful, as ſome Obſervations which I read the other Day in an Abridgment of the *Chineſe* Annals, written in *Latin*, and publiſhed lately. They ſee a thouſand Stars at a Time, which fall from the Sky into the

the Sea with a prodigious Noiſe, or are diſſolved, and melt into Rains; and theſe are Things which have been ſeen more than once in *China*. I met with this Obſervation at two ſeveral Times pretty diſtant from each other, without reckoning a certain Star which goes *Eaſtward*, and burſts like a Squib, always with a great Noiſe. It is great Pity that theſe ſort of *Phænominons* ſhould be reſerved for *China*, and that our part of the Globe ſhould never have their Share of theſe Sights. It is not long ſince our Philoſophers thought they might affirm on good Grounds, that the *Heavens* and all the *Celeſtial Bodies* were incorruptible, and therefore incapable of Change; and yet at the ſame time, there were other Men in the other part of the Earth who ſaw Stars diſſolve by Thouſands, which muſt produce a very different Opinion. But, *ſays the Counteſs*, did we ever hear it allowed that the *Chineſe* were ſuch great Aſtronomers? 'Tis true, we did not, *ſays I*, but the *Chineſe* have an Advantage from being

being divided from us by ſuch a prodigious Tract of Earth, as the *Greeks* had over the *Romans* by being ſo much Prior in Time: Diſtances of every ſort pretend a Right of impoſing on us. In Reality, I think ſtill more and more, that there is a certain Genius which has never yet been out of the Limits of *Europe*, or at leaſt not much beyond them; perhaps he may not be permitted to ſpread over any great Extent of the Earth at once, and that ſome Fatality preſcribes him very narrow Bounds. Let us indulge him whilſt we have him; the beſt of it is, he is not linkt to the Sciences and dry Speculations, but launches out with as much Succeſs into Subjects of Pleaſure, in which Point I queſtion whether any People equal us. Theſe are ſuch Topicks, Madam, as ought to give you Entertainment, and make up your whole *Syſtem* of *Philoſophy*.

A N

AN

ORATION,

IN

DEFENSE

OF THE

New PHILOSOPHY.

Pronounced in the Theatre at *Oxford*, *July* 7th, 1693. Tranſlated from the *Latin* Original.

HOW long, Gentlemen of the Univerſity, ſhall we ſlaviſhly tread in the Steps of the Antients, and be afraid of being wiſer than our Anceſtors? How long

ſhall we religiouſly worſhip the Triflings of Antiquity, as ſome do old Wives Stories? It is indeed ſhameful, when we ſurvey the *great Ornament* of the preſent Age *, to transfer our Applauſes to the Antients, and to take Pains to ſearch into Ages paſt for Perſons fit for Panegyrick.

The antient Philoſophy has had more allowed than it could reaſonably pretend to, how often has SHELDON's Theatre rung with *Encomia* on the *Stagyrite*, who, greater than his own *Alexander*, has long, un-oppoſed, triumphed in our School-Desks, and had the whole World for his Pupils. At length roſe CARTESIUS, a happier Genius, who has bravely aſſerted the Truth againſt the united Force of all Oppoſers, and has brought on the Stage a new Method of philoſophizing. But ſhall we ſtigmatize with the Name of Novelty that Philoſophy,

* Sir ISAAC NEWTON.

which,

Which, tho' but lately revived, is more antient than the *Peripatetick*, and as old as the Matter from whence it is derived. A great Man indeed He was, and the only one we envy FRANCE *. He ſolved the Difficulties of the Univerſe almoſt as well as if he had been its Architect. He deſtroyed thoſe Orbs of Glaſs, which the Whims of Antiquity had fixed above, brought to light that Troop of Forms till then unknown, and has almoſt extinguiſhed the Element of Fire, nay, he with ſo much Clearneſs traced out the whole Maſs of Matter, as to leave no occult Quality untouched. This Philoſopher ſcorned to be any longer bounded within the Straights and Chryſtalline Walls of an *Ariſtotelick* World; no, his Delight is to ſearch the Regions above, to diſcover new Suns, and new Worlds, which lay hid amongſt the Stars; his Satisfaction

* DES-CARTES.

is to view that large Kingdom of Air amidſt the unfixed Stars, and Lands that paſs the milky Way, and more accurately meaſure this vaſt Machine, a Machine fit for Mankind to philoſophize on, and worthy of the Deity, that firſt framed it.

Here we have not only new Heavens opened to us, but we look down on our Earth; this Philoſophy affords us ſeveral Kinds of Animals; where, by the Help of Microſcopes, our Eyes are ſo far aſſiſted, that we may diſcern the Productions of the ſmalleſt Creatures, while we conſider with a curious Eye the animated Particles of Matter, and behold with Aſtoniſhment, the reptile Mountains of living Atoms. Thus are our Eyes become more penetrating by modern Helps, and even that Work which Nature boaſts for her Maſter-Piece, is rendred more correct and finiſhed. We no longer pay a blind Veneration to that barbarous *Peripatetick*-Jingle, thoſe obſcure Scholaſtick Terms of Art, once held

held as Oracles, but conſult the Dictates of our own Senſes, and by late invented Engines force Nature her ſelf to diſcover plainly her moſt valued Secrets, her moſt hidden Receſſes.

By the Help of Inſtruments like theſe, that Air, which a bountiful Nature has indulged us, we as often as we pleaſe by the Force of Art, abridge other Animals of, and keep them in our Pneumatick Pumps, from its common Benefit: What a Pleaſure is it to ſee the fruitleſs Heavings of the Lights, to exhauſt their Lives, and by a moſt artful Sort of Theft rob them of their Breath? From this nothing is ſafe, nothing ſo long lived, which gradually does not languiſh, and fall dead without a Wound. A divine Piece of Art this, and worthy its Author *, who in the Conduct of his Life, and the Force of his Arguments, has ſo nobly honoured our Nation, and the new

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* The Honourable ROBERT BOYLE Eſq; Philo-

Philoſophy, one who for this Reaſon too deſerves never to want the Benefit of his own Air, or that he, who has ſo often deprived other Animals of their Life, ſhould ever breathe out his own.

On no ſuch Grounds as theſe has ARISTOTLE built his Philoſophy, who from his own Brain furniſhed out all his Rules of Arts and Sciences, and left nothing untouched on, nothing unregarded but *Truth*. If therefore he precipitated himſelf into the River *Euripus*, becauſe he could not underſtand its Ebb and Flow, by the ſame Logick he might at his firſt Entrance on Philoſophy have deſtroyed himſelf, and we may fairly doubt, in which of the Elements he ought to have periſhed.

After ARISTOTLE's Fate amidſt the Waves of *Euripus*, a new Race of *Peripateticks* ſtarted up, even worſe than their Founder, who handed their Philoſophy to after Ages in ſo thick an Obſcurity, that it has preſerved it from the Satire and Ridicule of all Mankind, as underſtood by very few. Some there

there are to be found, who ſpend their Time amidſt the Rubbiſh which theſe Commentators have filled the World with, and pore more than once on theſe god-like Treaſures of Learning, and ſtick to them to no other Purpoſe, unleſs to ſhew the World the vaſt Pains they take to be deceived. Can there be a more pleaſant Sight than to ſee theſe wiſe Champions wrangling with each other? The one, armed with Propoſitions and Syllogiſm, attacks his Antagoniſt in the ſame Armour: Both bell-weathers grow angry, and ſtorm, fond of a Victory, which is worth but a Trifle, when obtained: Each, with all his Might darts out his Barbariſms at the other, they entangle themſelves in their Follies, and as neither knows how to extricate himſelf, they ſound to a Retreat, and when all the Ammunition is ſpent on both Sides, they think fit to keep Silence.

Thus far, Gentlemen, and no farther launches out the antient Philoſophy: Let us therefore ſentence for ever this Troop

Troop of Commentators, to be tied up in Chains and Libraries, Food only for Moths and Worms, and there let them quietly grow Old, free from the Sight of any Reader.

Joseph Addison.